# Jakob Vinther: Curriculum Vitae

1. **PERSONAL INFORMATION**

Full name: Dr Jakob Vinther

Date of Birth: November 24th, 1981

1. **PRESENT APPOINTMENT**

August 2015 – present Senior Lecturer in Macroevolution,

School of Earth Sciences and School of Biological Science, University of Bristol.

1. **PREVIOUS APPOINTMENTS**

2012-2015 Lecturer in Macroevolution,

School of Earth Sciences and School of Biological Science, University of Bristol.

2011-2012 Independent Postdoctoral Researcher: Jackson School of Geosciences, UT Austin, Texas.

1. **ACADEMIC QUALIFICATIONS**

2011 PhD Molecular Phylogenetics and Palaeontology. Department of Geology and Geophysics, Yale University: *The role of fossils and phylogeny in understanding the early evolution of annelids and mollusks (lophotrochozoans)* (Philip M. Orville Prize for best thesis in Earth Sciences).

2006 MSc, Zoology and Palaeontology, University of Copenhagen, *Thesis title: The canal system in sclerites of Early Cambrian Sinosachites and its homology with polyplacophoran aesthete canal systems.* (Mark 13, the highest mark in former Danish system).

1. **SPECIAL AWARDS, HONOURS AND DISTINCTIONS**

2018 San Cataldo Monastery Retreat/Sabbatical: I was awarded a one month stay for writing at a sanctuary for artists and scientists run by a Danish association in Southern Italy. I was one out 18 of more than 200 applicants. I had to decline this.

2018 Nomination, Bristol Students Union: Outstanding teacher award.

2014 Fellow of the Higher Education Academy.

2013 Newton International Fellowship, Royal Society: Declined due to tenure as a lecturer at the University of Bristol.

2012 Hodson Award, Palaeontological Association: for young palaeontologist that have made a notable contribution to Science.

2011 Philip M. Orville Prize, Yale University: awarded for best thesis in Earth Sciences.

2010 James Dwight Dana fund: supporting graduate studies (tuition fees) by covering teaching duties for one year.

2010 Gaylord Simpson Prize, Yale University: for excellence in paleontological research.

2010 Estwing Hammer Prize, Yale University: for excellence in research in Earth Sciences.

2009 Sylvester Bradley Award, Palaeontological Association: to support research for my PhD

2008 Gaylord Simpson Prize, Yale University: for excellence in paleontological research.

2006 Schibbyan Prize, Danish Natural History Society: for excellence in research.

2002 Scholarship to stay at the Regensen Dormitory, University of Copenhagen: this is a highly competitive place to be awarded to live in. Residents pay £120 a month for accommodation and amenities. The dormitory is the oldest in the country. It was built in 1623 by King Christian IV.

1. **TEACHING and RELATED ADMINISTRATION**

I find teaching one of the most rewarding aspects of Academia. The core values I esteem in my teaching is to have **a student-led dialogue** during my lectures. I believe in spurring **critical thinking** in students and excellence with an **interdisciplinary** curriculum. I believe that these values set my students off wishing to think laterally and outside the box in whatever path they end up in afterwards. I ensure students receive teaching materials before lectures on Blackboard and upload recorded lectures the same day they were given. In 2018, I was among the **top third educators** in the School of Earth Sciences in NSS score. As a tutor, I seek to challenge my students and give them a variety of experiences and advise that they find helpful. With my passion for science, I enthuse students to love the field and understand why the subject is of broader relevance and should be of interest. I receive in particular excellent feedback for the EASC 20026 Mesozoic Field trip. The students find this trip to be an incredible learning experience. Some of the feedback I have received is ‘*this is the first time I have learned to make useful observations in the field and use a notebook*’. In 2017-2018, I shadowed the MSc director and took up a number of administrative roles for the directorship with the idea that I was to take over the unit as Director, but it was eventually decided to employ a new Pathway 3 post to be in charge of this unit. Nonetheless, I make significant contributions to teaching in both the School of Earth Sciences and School of Biological Sciences, including being course leader for two SoES Units, contributing to many others and frequently supervising more than ten student research projects (MSci, MSc, BSc) per year. Overall, due to my commitments in both schools, I contribute in particular to student supervision, which takes up a significant proportion of my time.

*(i) All undergraduate and taught postgraduate units to which you have contributed in the period, etc.* ***All units are on-going*.**

Cambrian Explosion, the origin of animal body plans (EASC 30052) (2013-)

(a), 35-42 students. (b), year three. (c), **course leader**. (d), Lectures and practicals. (e), estimated 140 hours (15 lectures + 4 hours preparation, five practicals + 2 hours preparation, marking reports 30 hours, exam marking 20 hours) 100 %. (f), lecturing, questions to the pupils during lectures, practical exercises. (g), two reports and an exam marked entirely by me.

Mesozoic Palaeontology, Sedimentology and Stratigraphy (EASC 20026) (2013-)

(a), 10-14 students. (b), year two. (c), **course leader**. (d), field exercises. (e), 100 hours, 100 %. (f), practical exercises in the field, practice in taking notes in notebook. (g), two assessments during the trip and marking of the handbook at the end of the trip marked by myself. (h), several students have remarked upon the value of learning to make useful observations in the field and learning to make reproducible field notes in a notebook.

Literature Review (EASC M0034) (2012-present) (2012-)

(a) Between 4-6 students annually; (b) M-Level, MSc Palaeobiology; (c) contributor (shadowed the directorship in 2017/2018); (d) one-on-one discussion and development of ideas with project students; (e) approx. 6-10 hours contact time per student; (f) discussion and development of ideas, writing and evaluating drafts; (g) assessed by two pieces of written work. (h) one student decided to continue with an aspect of their literature review as an MSc student under my supervision (graduating in 2018) and has shaped their career path as they are now seeking to do a PhD in biomechanics.

Research Methods in Palaeobiology (EASC M0038) (2012-)

(a) Between 4-6 students per year; (b) M-Level, MSc Palaeobiology; (c) contributor (shadowed the directorship in 2017/2018); (d) one-on-one discussion and development of ideas with project students, research supervision; (e) 10-20 hours contact time per student, usually 70% by myself, 30% by co-supervisor or PDRA; (f) discussion and development of ideas, writing and evaluating drafts; (g) assessed on production of technical note (*Biology Letters* style) and research seminar.

MSc Palaeobiology thesis (EASC M1016) (2012-)

(a) I directly supervise between 4-6 students per year; (b) M-Level, MSc Palaeobiology; (c) contributor (shadowed the directorship in 2017/2018); (d) one-on-one discussion and development of ideas with project students, research supervision (e) 10-20 hours contact time per student, usually 70% by myself, 30% by co-supervisor or PDRA (f) discussion and development of ideas, writing and evaluating drafts (g) one-on-one discussion and development of ideas with project students; (e) 10-20 hours contact time per student, usually 70% by myself, 30% by co-supervisor or PDRA; (f) discussion and development of ideas, writing and evaluating drafts; (g) assessed on basis of 10,000 word thesis. (h) Research theses have resulted in six peer-reviewed publications (including one in PNAS), an additional six is being written up currently for publication.

EASC tutorials (2012-)

(a) I have 4-6 students across four years; (b) BSc-MSci level; (c) contributor; (d) one-to-one one-to-group meetings and marking of coursework (e) 1 contact hour, one preparation hour per tutorial. The number of tutorials varies from bi-weekly, to monthly depending on year group (f) Discussion and development of student portfolio and other transferrable skills (g) no marks or assessment, mainly a pastoral time.

Key Concepts in Biology (BIOL10002) (2014-)

270 students; (b) Level 1; (c) contributor; (d) lectures; (e) 2 hours total direct contact, 100% delivered by me; (f) Lectures, questions to students during lecture; (g) Multiple choice exam questions.

Biology 1A (BIOL11000) Diversity of Life (2014-)

270 students; (b) Level 1; (c) contributor; (d) Lectures and practicals; (e) 28 hours total direct contact, 100% delivered by me; (f) Lectures and questions to students during lecture; (g) Multiple choice exam questions and essay type questions (4 MCQ and one essay question set by myself).

Literature Review (BIOL30002) (2013-)

(a) 5 students; (b) Level 3; (c) contributor; (d) one-on-one discussion and development of ideas with project students; (e) approx. 6-10 hours contact time per student; (f) discussion and development of ideas, evaluating progress; (g) assessed on the basis of one written work – plus a non-graded presentation.

Practical Project (BIOL30002) (2013-)

(a) 4-6 students; (b) Level 3; (c) contributor; (d) one-on-one discussion and development of ideas, supervision of laboratory work, interpretation of results and thesis writing; (e) approx. 5-8 hours contact time per student; (f) discussion and development of the project (g) assessed on the basis of written work.

Tree of Life (BIOL30004) (2015-)

(a) 25 students; (b) Level 3; (c) contributor; (d) Lectures; (e) 1 hour total direct contact, 100% delivered by myself; (g) Multiple choice exam questions + one essay (I do no marking on this course).

 *(ii) Major teaching responsibilities in previous years, with dates where possible:*

Key topics in Environmental Geoscience (EASC 0016) (2012-2013).

(a), 20-30 students. (b), year 3. (c), **course leader**. (d), seminars. (e), 10 lectures + discussions, 60%. (f), lectures and debate. (g), oral mark and essay mark marked by me and the postdoc.

*(iii) Innovatory units or teaching methods introduced by you*

We train students in our unique Palaeobiology programmes (Palaeontology and Evolution MSci and Palaeobiology taught MSc) to see the world in an interdisciplinary framework that includes biology and geology. To cement those skills, I developed my unit "Cambrian Explosion (EASC 30052)". This unit integrates fossils, geochemistry, sedimentology and taphonomy with molecular biology, molecular phylogenetics, developmental biology and ecology to understand the dynamic between the biosphere and the geosphere and how they coevolve. The students are equipped to think using different lines of evidence to piece together hypotheses and identifying the complementary strength in synthesising divergent lines of evidence: From learning to dissect a worm to running a molecular clock analysis remotely on a cluster using a shell. With these very different lines of evidence, I like to show how to ask questions through holistic thinking. Hopefully, this gives the student the confidence and curiosity to think similarly in whatever line of work they pursue, as such thinking is where frontiers of knowledge and technology will likely emerge.

I also developed a specific field course for the Palaeontology and Evolution BSc students in which we look at Mesozoic formations along the Dorset Coast and the Isle of Wight. This unit is tailored for palaeontologists and uses palaeontological evidence (trace fossils and body fossils), together with sedimentological and stratigraphic evidence, to piece together palaeoenvironments and to understand the sedimentological context of taphonomy. The students have long been wishing to have more palaeontology relevant field experience, which this unit offers.

I took over the organisation of the Diversity of Life lectures and practicals (Biol Sciences). Because of my unique training in zoology, I have been able to massively update the content of these lectures to make it contemporary with 21st-century knowledge. I have proposed some updated phylogenetic trees to present to students in order to avoid conflicting information between lecturers teaching different animal groups. Students generally demonstrate their enthusiasm in how well they are engaged during the lectures and coming down to ask questions to me afterwards. I also teach the practicals for these units, which is quite an undertaking to administrate with 270 students.

*(iv) Contribution to Life-long Learning and CPD courses:* None.

 *(v) Collaborative teaching projects with colleagues in other departments or faculties or institutions:* None.

 *(vi) Postgraduate advising, giving the names of research students you are advising currently (indicating whether you are the single adviser or whether there are joint advisory arrangements) and the names of those whom you have successfully advised in the past.*

**Current PhD students:**

* Fiann Smithwick [Bristol 2015-] Palaeocolour and the evolution of dinosaurs and Birds [**NERC** **DTP, ~£85.000**], **Primary Supervisor**. Co-supervisors Prof Innes Cuthill (Bristol) and Daniel Field (Cambridge/Bath).
* Arsham Nejad Kourki [Bristol 2017-] The evolution of Eumetazoa [**Fee waiver; Self-funded living allowance**], **Primary Supervisor**. Co-supervisors Prof Philip Donoghue (Bristol).
* Morten Lunde Nielsen [Bristol 2017-] Palaeoecology of the Sirius Passet Lagerstätte. [**NERC DTP CASE, ~£85.000**]. **Primary Supervisor**. co-supervised by Professor Jane Memmott (Bristol), Dr Arne T. Nielsen (Copenhagen University), Dr Tae-Yoon Park (KOPRI).
* David Marshall [Bristol 2015-] Taphonomy of arthropod cuticle and sensory biology of eurypterids [**self-funded, part time**]. **Primary Supervisor**. Co-supervised with Mark Holderied (Bristol).
* Catherine Klein [Bath 2015–] The evolution of Squamata [**Belgian Government Fellowship**] **Co-supervised** with Dr Nick Longrich (Bath) and Professor Davide Pisani (Bristol)
* Christopher Nedza [Leicester 2016-] taphonomy of early vertebrates [**NERC** **DTP**] **co-supervised** with Professor Sarah E. Gabbott (Leicester) and Mark Purnell (Leicester).

**PhD Alumni (Note: for all these students I was the primary supervisor):**

* Luke Parry [Bristol 2013–2017] The evolution of the annelid crown group - a synthesis of fossils, morphology and molecules [**NERC** **CASE**: ~£85.000]. Primary Supervisor. Co-supervised with Dr Davide Pisani and Profesor Gregory D. Edgecombe (NHM). Current Position: Post Doctoral fellow at Yale University
* Alistair Tanner [Bristol 2013–2018] An investigation of lophotrochozoan evolutionary history through Bayesian phylogenomics. Primary Supervisor. [**School of Biological Sciences** **STAR scholarship**]. Co-supervised with Dr Davide Pisani (Bristol) and Prof Wendy Gibson (Bristol). Current Position: Bioinformatician at the MCR Integrated Epidemiology Unit.
* Evan Saitta [Bristol 2015-2018] Taphonomy and evolution of keratinous appendages in archosaurs. [**Overseas, self-funded £18.000 per year**]. Primary Supervisor. Co-supervised with Dr Emily Rayfield (Bristol). Current Position: Post Doctoral fellow at the Field Museum of Natural History.

**Former Msc, Msci and Mres Students (Primary Supervisor only)**

2017-2018

* **Sarah Blake**, Palaeobiology MSc.
* **Zoe Hughes**, Palaeobiology MSc.
* **Sam Coatham**, Palaeobiology MSc. (Now a PhD student in Manchester)
* **Chris Stockey,** Palaeobiology MSc. (Now a PhD student in Leicester)
* **Savannah Fielder**, Palaeobiology MSc.
* **Danilo Camargo De Oliveira**, Palaeobiology MSc.

2016-2017

* **Kieran Goss**, Palaeobiology MSc.
* **Grace Fordham**, Palaeobiology MSc.
* **Sophie Williams**, Palaeobiology MSc. (Now a PhD student in Leeds)
* **Lizzie Learmonth,** Biology Mres, (Now civil servant)

2015-2016

* **Arindam Roy,** Palaeobiology MSc. (Now a PhD student in Hong Kong)
* **Giacinto De Vivo**, Palaeobiology MSc.

2014-2015

* **Jack Daniell**, Palaeobiology MSc.
* **Evan Saitta**, Palaeobiology MSc. (PhD student in Bristol, now Post Doc in Chicago)
* 2013-2014
* **Paul Wilson**, Palaeobiology MSc. (Now a PhD student in Warwick/Oxford Natural History Museum)
* **Cesar Espinosa Campuzano**, Palaeobiology MSc. (Now a PhD student in Oxford)
* **Heather Christie**, Biology Msci.

2012-2013

* **Caitlin Colleary**, Palaeobiology MSc. (PhD from Virginia Tech, now Postdoc at the Smithsonian Institution)
* **Thomas Clements**, Palaeobiology MSc. (PhD from Leicester, Now Postdoc at Cork)

*(vii) Major achievements in teaching administration, explaining the importance and significance*

* I created a unique course for the yr 3 cohort: Cambrian Explosion. I bring in diverse concepts from the Earth Sciences, including palaeontology, sedimentology and geochemistry with biology, such as ecology, developmental biology, molecular biology and phylogenetics to teach students the dynamics between the biosphere and geosphere. The students conduct a molecular phylogenetic analysis where the students need to submit their data to a cluster and run this through a terminal. For most students, this is the first time they use a shell for executing commands, and the learning curve is steep. The students also dissect a ragworm, lugworm and earthworm in order to link body plans to fossil evidence and phylogenetics. The unit is a unique unit in its interdisciplinary content, which teaches students to think holistically and across disciplines and lines of consiliatory evidence.
* I also created a novel Mesozoic Field trip unit that remains one of its kind—I wanted to make a field trip that has assessed work in the field is, specifically tailored to palaeobiologists. To do that, I developed a number of palaeontological exercises in the field to collect fossils and trace fossil observations and linking it to palaeo-environmental observations. Another aspect that are noted by students to be a major leap in their training is learning to make reproducible field notes. They have been instructed that they are marked on whether someone else could go and find each locality in their notebook and reproduce the observations that they have made. I show them examples in the field and take notes alongside them in order to show them by example how it is best done. Students have noted that not only do they feel like they are learning how to observe in the field, but also how to document these in a matter that makes sense.
* I have an excellent track record in training MSc and PhD students. Of the 13 MSc students that have graduated since 2017, half have obtained a PhD stipend. Of the three PhD students that have graduated, two have postdocs at the prestigious Yale University and Chicago Field Museum. I encouraged an undergraduate to pursue a PhD fellowship at one of the Ivy League universities. She managed to obtain a fellowship at Princeton University successfully. Three Erasmus interns in my lab all landed PhD fellowships also.
* I assist with UCAS open days in both the schools of Earth Sciences and Biological Sciences. I would have done more than 18 in the last six years. I have tutorial groups in every year, and I often have extra tutorials with groups to give them other experiences that the set curriculum does not allow. I am a certified first aider.
* I have revised great parts of the Diversity of Life (BIOL 11000) course, bringing the content and information to a contemporary standard.
* I oversaw admission of MSc students to the taught Palaeobiology MSc course in 2017-2018 and liaised with the faculty graduate board at meetings and other communications as deputy Msc director.

**(7) RESEARCH**

Major achievements: I am the **pioneer of the discipline of palaeocolour**—the study and reconstruction of fossil colour patterns. I first discovered the widespread occurrence of fossil melanin about ten years ago (Vinther et al. 2008, **Biology Letters**) and found the first evidence of preserved iridescence in a 50 million-year-old feather (Vinther et al. 2010, **Biology Letters**). Since then we have developed the methodology of detecting colour by measuring melanosome shape to identify melanin-based colours (Li et al. 2010, **Science**) and iridescence (Li et al. 2012, **Science**) and characterise the chemistry and fossilisation of melanin (Glass et al. 2012, **PNAS**) and chemical varieties that give rise to different hues (Colleary et al. 2015, **PNAS**). We have reconstructed the colours of extinct dinosaurs (Li et al. 2010, 2012 **Science**; Vinther et al. 2016, **Current Biology**; Smithwick et al. 2017, **Curr. Bio.**; Brown et al. 2017 **Curr. Bio.**), giant extinct penguins (Clarke et al. 2010, **Science**) and a Carboniferous lamprey (Gabbott et al. 2015, **Proc. B.**). Also using fossil melanosomes, we have been able to pinpoint the affinities of a long-time mystery: the Tully monster (Clements et al. 2016, **Nature**). All of these types of questions was thought impossible to address from fossils before this and have provided some novel hypotheses for how birds and feathers evolved. I have been instrumental in developing the field of **molecular palaeobiology**—a field in which molecular systematics and comparative genomics are used in conjunction with the fossil record to understand macroevolution/ tempo and mode of evolution (e.g. Vinther et al. 2012, **Proc. B**; Sperling et al. 2009, **Proc. B**; Kröger et al. 2011, **Bioessays**; Tanner et al. 2017, **Proc. B**; Longrich et al. 2015, **Curr. Bio.** Vinther et al. 2017, **Nature**). In particular, I have shown with these papers how one can test patterns and hypotheses of evolution in a context of evolutionary tempo and mode independent of the fossil record. My work on **exceptional fossils** and the **Cambrian Explosion** have resulted in several important publications (Vinther et al. 2008, 2014, 2017, **Nature**; Vinther et al. 2011, **Biology Letters**) that have changed our understanding of animal evolution and the nature of Earths first complex ecosystems. Through the integration of fossils in phylogenetic frameworks, we have been able to show how they yield results more congruent with molecular results than extant morphology alone (Parry et al. 2016, **Proc B.**). My research on **taphonomy** has tremendously improved our understanding and the underlying processes of fossilisation of soft tissues (e.g. Vinther 2015, **Bioessays**; Parry et al. 2017, **Bioessays**; Saitta et al. 2017 **Palaeontology,** 2018 **Organic Geochemistry**). Even though these are relatively recent discoveries, this work has already been incorporated into textbooks, including Futuyma’s and Zimmer and Emlen's’ Evolution **textbooks,** as well as many **popular books** on dinosaur evolution (Switek; Brusatte), molluscs (Scales) and cephalopods (Staaf). A **National Geographic television show** was made about my discovery of fossil melanin, and I have featured in science programmes on Discovery channel, BBC, Sky TV, ARD including several of David Attenborough's shows. Moreover, I have been **interviewed for radio shows** more than 15 times, including NPR (Morning Edition, Science Friday), BBC (Inside Science, World Service), Danish radio (Breakfast show, ‘world of science'), New Zealand, German and Colombian Radio.

1. *Publications*

Total Number of published publications:

Refereed academic Journal Papers [times cited, Google Scholar](% contribution). \* denotes authors who are PhD students and researchers in my research group and it is worth noting that students and PDRAs have led many of the 32 publications since my promotion to SL. **^** denote publications with international coauthors and **“** denote publications with non-academic co-authors. NOTE: Atypical to my field, I seek to make senior authors last author. However, some studies will have a slightly different order due to the request from coauthors and different customs (e.g. when collaborating in China).

2019

1. \*Parry, L. A., Edgecombe, G. D., Sykes, D. and **Vinther, J.** 2019. Jaw elements in *Plumulites bengtsoni* confirm that machaeridians are extinct armoured scaleworms. Proceedings of the Royal Society B 286 (1907), 20191247
2. Lozano-Fernandez, J., Giacomelli, M., Fleming, J., Chen, A., **Vinther, J.**, Thomsen, P. F., Glenner, H., Palero, F., Legg, D.A., Iliffe, T.-M., Pisani, D. and Olesen J. 2019. Pancrustacean evolution illuminated by taxon-rich genomic-scale data sets with an expanded remipede sampling. Genome biology and evolution
3. \*Babarović, F., Puttick, M. N., Zaher, M., \*Learmonth, E., \*Gallimore, E.J., \*Smithwick, F. M., Mayr, G. and **Vinther, J.** 2019. Characterization of melanosomes involved in the production of non-iridescent structural feather colours and their detection in the fossil record Journal of the Royal Society Interface 16 (155), 20180921
4. \*Saitta, E.T., Liang, R., Lau M. C. Y., Brown, C. M., Longrich, N. R., Kaye, T. G., Novak, B. J., Salzberg, S. L., Norell, M. A., Abbott, G. D., Dickinson, M. R., **Vinther, J.**, Bull, I. D., Brooker, R. A., Martin, P., Donohoe, P., Knowles, T. D. J., Penkman, K. E. H., Onstott, T. C. 2019. Cretaceous dinosaur bone contains recent organic material and provides an environment conducive to microbial communities. eLife 8, e46205
5. Lozano-Fernandez, j., \*Tanner, A. R., Giacomelli, M., Carton, R., **Vinther, J.,** Edgecombe, G. D., Pisani, D. 2019. Increasing species sampling in chelicerate genomic-scale datasets provides support for monophyly of Acari and Arachnida. Nature communications 10 (1), 2295.
6. Zhao, Y., **Vinther, J.**, \*Parry, L. A., Wei, F., \*Green, E., Pisani, D., Hou, X.-G. Edgecombe, G. D. and Cong P.-Y. Cambrian sessile, suspension feeding stem-group ctenophores and evolution of the comb jelly body plan. Current Biology 29 (7), 1112-1125.
7. **Vinther, J.** and \*Parry, L.A. 2019. Bilateral jaw elements in *Amiskwia sagittiformis* bridge the morphological gap between gnathiferans and chaetognaths. Current Biology 29 (5), 881-888.
8. \*Parry, L.A., Eriksson, M. and **Vinther, J.** 2019. The Annelid Fossil Record. In, Handbook of Zoology: Volume 1: Annelida Basal Groups and Pleistoannelida, Sedentaria I (Editors Purchsche, G; Böggeman, G. and Westheide, W.). De Gruyter, 69-88.

2018

1. Fleming, J. M., Kristensen, R. M., Sørensen, M. V., Park, T-Y-S., Arakawa, K., Blaxter, M., Rebecchi, L., Guidetti, R., Williams, T. A., Roberts, N. W. **Vinther, J.** and Pisani, D. 2018. Molecular palaeontology illuminates the evolution of ecdysozoan vision. Proceedings of the Royal Society B 285 (1892), 20182180.
2. \*Nordén, K. K., \*Faber, J., \*Babarović, F., Stubbs, T. L., Selly, T., Schiffbauer, J. D., ... & **Vinther, J.** (2018). Melanosome diversity and convergence in the evolution of iridescent avian feathers-implications for paleocolor reconstruction. *Evolution; international journal of organic evolution*. [0](30%)^
3. \*Saitta, E.T., Fletcher, I., Martin, P., Pittman, M., Kaye, T.G., True, L.D., Norell, M.A., Abbott, G.D., Summons, R.E., Penkman, K. and **Vinther, J.**, 2018. Preservation of feather fibers from the Late Cretaceous dinosaur *Shuvuuia deserti* raises concern about immunohistochemical analyses on fossils. *Organic Geochemistry*, *125*, pp.142-151. [0](40%)
4. \*Saitta, E.T., Clapham, C. and **Vinther, J.**, 2018. Experimental subaqueous burial of a bird carcass and compaction of plumage. *PalZ*, pp.1-6. [0](10%)^”
5. \*Saitta, E.T., Kaye, T.G. and **Vinther, J.,** 2018. Sediment‐encased maturation: a novel method for simulating diagenesis in organic fossil preservation. *Palaeontology*. [0] (40%)^”
6. \*Saitta, E.T., Liang, R., Lau, C.Y., Brown, C.M., Longrich, N.R., Kaye, T.G., Novak, B.J., Salzberg, S., Donohoe, P., Dickinson, M. and **Vinther, J.,** 2018. Life Inside A Dinosaur Bone: A Thriving Microbiome. *bioRxiv*, p.400176. [0](5%)^”
7. Park, T. Y. S., Kihm, J. H., Woo, J., Park, C., Lee, W. Y., Smith, M. P., ... & **Vinther, J.** (2018). Brain and eyes of *Kerygmachela* reveal protocerebral ancestry of the panarthropod head. *Nature communications*, *9*(1), 1019. [1](50%)^
8. \*Parry, L. A., Baron, M. G., & **Vinther, J.** (2018). Correction to ‘Multiple optimality criteria support Ornithoscelida’. *Royal Society open science*, *5*(3), 180154. [0] (10%)
9. \*Saitta, E. T., Gelernter, R., & **Vinther, J.** (2018). Additional information on the primitive contour and wing feathering of paravian dinosaurs. *Palaeontology*, *61*(2), 273-288. [1] (45%)^”
10. \*Parry, L. A., \*Smithwick, F., \*Nordén, K. K., \*Saitta, E. T., Lozano‐Fernandez, J., \*Tanner, A. R., ... & **Vinther, J.** 2018. Soft‐Bodied Fossils Are Not Simply Rotten Carcasses–Toward a Holistic Understanding of Exceptional Fossil Preservation. *BioEssays*, *40*(1). [4] (55%)^

2017

1. \*Smithwick, F. M., Nicholls, R., Cuthill, I. C., & **Vinther, J.** 2017. Countershading and Stripes in the Theropod Dinosaur *Sinosauropteryx* Reveal Heterogeneous Habitats in the Early Cretaceous Jehol Biota. *Current Biology*, *27*(21), 3337-3343. [1] (40%)”
2. **Vinther, J.** 2017. Presentation of the 2015 Paleontological Society Medal to Derek EG Briggs. *Journal of Paleontology*, *91*(6), 1337-1338. [0](100%)
3. O'Reilly, S., Summons, R., Mayr, G., & Vinther, J. 2017. Preservation of uropygial gland lipids in a 48-million-year-old bird. In *Proc. R. Soc. B* (Vol. 284, No. 1865, p. 20171050). The Royal Society. [1] (40%)^
4. \*Saitta, E. T., Rogers, C. S., Brooker, R. A., & **Vinther, J.** 2017. Experimental Taphonomy of Keratin: a Structural Analysis of Early Taphonomic Changes. *Palaios*, *32*(10), 647-657. [1](20%)
5. \*Parry, L. A., Baron, M. G., & **Vinther, J.** 2017. Multiple optimality criteria support Ornithoscelida. *Royal Society Open Science*, *4*(10), 170833 [4](20%)
6. Brown, C. M., Henderson, D. M., **Vinther, J.**, Fletcher, I., Sistiaga, A., Herrera, J., & Summons, R. E. 2017. An Exceptionally Preserved Three-Dimensional Armored Dinosaur Reveals Insights into Coloration and Cretaceous Predator-Prey Dynamics. *Current Biology*, *27*(16), 2514-2521. [13] (25%)^
7. \*Saitta, E. T., Rogers, C., Brooker, R. A., Abbott, G. D., Kumar, S., O’Reilly, S. S., Donohoe, P., Dutta. S., Rummons, R. E. And **Vinther, J**. 2017. Low fossilisation potential of keratin protein revealed by exprimental taphonomy. Palaeontology. [14](30%)^
8. \*Smithwick, F. M., Mayr, G., Saitta, E. T., Benton, M. J. And **Vinther J.** 2017. On the purported presence of fossilised collagen fibres in ichthyosaur and a theropod dionsaur. Palaeontology. [5](30%)
9. \*Tanner, A. R., D. Fuchs, I. E. Winkelmann, M. T. P. Gilbert, M. S. Pankey, Â. M. Ribeiro, K. M. Kocot, K. M. Halanych, T. H. Oakley, R. R. da Fonseca, D. Pisani and **J. Vinther**. 2017. Molecular clocks indicate turnover and diversification of modern coleoid cephalopods during the Mesozoic Marine Revolution. *Proceedings of the Royal Society B: Biological Sciences* **284** (1850). [16] (40%)^
10. **Vinther, J.** (2017). The True Colors of Dinosaurs. *Scientific American*, *316*(3), 50. [1] (95%)
11. **Vinther, J.,** \*Parry, L. Briggs, D.E.G. and Van Roy, P. 2017. Ancestral morphology of crown-group molluscs revealed by a new stem aculiferan. *Nature*. [18] (60%)^
12. Field, D. J., Boessenecker, R., Racicot, R. A., Ásbjörnsdóttir, L., Jónasson, K., Hsiang, A. Y., Behlke, A. D. and **Vinther, J.** (2017), The oldest marine vertebrate fossil from the volcanic island of Iceland: a partial right whale skull from the high latitude Pliocene Tjörnes Formation. *Palaeontology*, early online. [1] (10%)^
13. \*Young, F.J. and **Vinther, J.**, 2017. Onychophoran‐like myoanatomy of the Cambrian gilled lobopodian *Pambdelurion whittingtoni*. *Palaeontology*, **60**, pp.27-54. [4] (40%)

2016

1. \*Clements, T., \*Colleary, C., De Baets, K., & **Vinther, J.** (2016). Buoyancy mechanisms limit preservation of coleoid cephalopod soft tissues in Mesozoic Lagerstätten. *Palaeontology*. [10] (40%)^
2. **Vinther, J.**, \*Porras, L., \*Young, F. J., Budd, G. E., & Edgecombe, G. D. (2016). The mouth apparatus of the Cambrian gilled lobopodian *Pambdelurion whittingtoni*. *Palaeontology*, **59**(6), 841-849. [11] (50%)^
3. Mayr, G., Pittman, M., \*Saitta, E., Kaye, T. G., & **Vinther, J.** (2016). Structure and homology of *Psittacosaurus* tail bristles. *Palaeontology*, **59**(6), 793-802. [9] (20%)^”
4. **Vinther, J.**, Nicholls, R., Lautenschlager, S., Pittman, M., Kaye, T.G., Rayfield, E., Mayr, G. and Cuthill, I.C., 2016. 3D camouflage in an ornithischian dinosaur. *Current Biology*, **26**(18), pp.2456-2462. [26] (70%)^
5. \*Parry, L. A., Edgecombe, G. D., Eibye-Jacobsen, D., & **Vinther, J.** (2016, August). The impact of fossil data on annelid phylogeny inferred from discrete morphological characters. In *Proc. R. Soc. B* (Vol. **283**, No. 1837, p. 20161378). [16] (30%)^
6. Gabbott, S. E., Donoghue, P. C., Sansom, R. S., **Vinther, J.**, Dolocan, A., & Purnell, M. A. (2016, August). Pigmented anatomy in Carboniferous cyclostomes and the evolution of the vertebrate eye. In *Proc. R. Soc. B* (Vol. **283**, No. 1836, p. 20161151). The Royal Society. [11] (20%)
7. Lozano-Fernandez, J., Carton, R., \*Tanner, A.R., Puttick, M. N., Blaxter, M., **Vinther, J.**, Olesen, J., Giribet, G., Edgecombe, G. D. And Pisani, D. 2016. A molecular Palaeobiological exploration of arthropod terrestrialisation. *Phil. Trans. R. Soc. B*., **371**. [38] (10%)^
8. \*Wilson, P., \*Parry, L. A., **Vinther, J.** and Edgecombe, G. D. 2016. Unveiling biases in soft-tissue preservation: Extensive preservation of musculature in the Cretaceous (Cenomanian) polychaete *Rollinschaeta myoplena* (Annelida: Amphinomidae). *Palaeontology* **59**, 463-479. [11] (25%)
9. \*Clements, T., Dolocan, A., Martin, P., Purnell, M. A., **Vinther, J.** and Gabbott, S. E. 2016. The eyes of *Tullimonstrum* reveal a vertebrate affinity. *Nature*, **532**, 500-503. [20] (40%)^
10. **Vinther, J.** 2016. Fossil melanosomes or bacteria? A wealth of findings favour melanosomes. *Bioessays* **38**, 220-225. [11] (100%)

2015

1. \*Parry, L., Wilson, P., Sykes, D., Edgecombe, G. D. and **Vinther, J.** 2015. A new fireworm (Amphinomidae) from the Cretaceous of Lebanon identified from three-dimensionally preserved myoanatomy. *BMC evolutionary biology* **15**, 256-. [8] (40%)
2. \*Colleary, C., Dolocan, A., Gardner, J., Singh, S., Wuttke, M., Rabenstein, R., ... & **Vinther, J**. (2015). Chemical, experimental, and morphological evidence for diagenetically altered melanin in exceptionally preserved fossils. *Proceedings of the National Academy of Sciences* ***112***, 12592-12597. [52] (50%)^
3. \*Parry, L., **Vinther, J.** and Edgecombe, G. D. 2015. Cambrian stem-group annelids and a metameric origin of the annelid head. *Biology Letters* **11**, 20150763. [19] (30%)
4. **Vinther, J**. 2015. Animal evolution: When small worms cast long phylogenetic shadows. *Current* *Biology* **25**, R762-R764. [6] (100%)
5. **Vinther, J.** 2015. A guide to the field of palaeo colour. *Bioessays* **37**, 643-656. [38] (100%)

**Promotion to Senior Lecturer**

1. Longrich, N.R., **Vinther, J.**, Pyron, R. A., Pisani, D. and Gauthier, J. 2015. Biogeography of worm lizards (Amphisbaenia) driven by end-Cretaceous mass extinction. *Proc. R. Soc. B.* **282**, 2014034. [31] (30%)^
2. Smith, N.A., Chiappe, L.M., Clarke, J.A., Edwards, S.V., Nesbitt, S.J., Norell, M.A. Stidham, T.A., Turner, A., van Tuinen, M., **Vinther, J.** and Xu, X. 2015. Rhetoric vs. Reality: A commentary on ”Bird origins Anew” by A. Feduccia. *The* *Auk* **132**, 467-480. [13] (15%)^
3. Klug, C., Kröger, B., **Vinther, J.,** Fuchs, D. and De Baets, K. 2015 Ancestry, Origin and Early Evolution of Ammonoids. In: Ammonoid Paleobiology - From Macroevolution to Paleogeography. *Springer,* 3-24. [11] (15%)^
4. Benton, M. J., Donoghue, P. C. J., Asher, R. J., Friedman, M., Near, T. J. and **Vinther, J.** 2015. Constraints on the time scale of animal evolution. Palaeo-Electronica. [98] (10%)^
5. **Vinther, J.** 2015. The origins of Molluscs. *Palaeontology* **58**, 19-34. [36] (100%)

2014

1. Emmanuel, S., Schuessler, J. A., **Vinther, J.,** Matthews, A. von Blanckenburg, F. 2014. Iron isotope fractionation in marine invertebrates in near shore environments. *Biogeosciences* **11**, 5493-5502. [1] (10%)^
2. **Vinther, J.** 2014**.** A molecular palaeobiological perspective on aculiferan evolution. *Journal of Natural History* **48,**  2805-2823. [6] (100 %)
3. \*Parry, L. A., \*Tanner, A. and **Vinther, J.** 2014. The origin of annelids, *Palaeontology*,**57**, 1091-1103. [41] (45 %)
4. Vannier, J., Liu, J., Lerosey-Aubril, R. **Vinther, J.** and Daley, A. 2014. Sophisticated digestive systems in early arthropods. *Nature Communications* **5**, 3641. [54] (30 %)^
5. **Vinther, J.**, Stein, M., Longrich, N. R. and Harper, D. A. T. 2014. A suspension feeding anomalocarid from the Early Cambrian. *Nature* **507,** 496-499. [66] (65%)^

2013

1. Orlando, L., Ginolhac, A., Zhang, G., Froese, D., Albrechtsen, A., Stiller, M., Schubert, M., Cappelini, E., Petersen, B., Moltke, I., Johnson, P. L. F., Fumagalli, M., Vilstrup, J. T., Raghavan, M., Kornelliusen, T., Malaspinas, A.-S., Vogt, J., Szklarczyk, D., Kelstrup, C. D., **Vinther, J.**, Dolocan, A., et al. 2013. Recalibrating *Equus* evolution using the genome sequence of an early Middle Pleistocene horse. *Nature* **499,** 74-78. [448] (5%)^
2. Field, D. J. and D'Alba, L. and **Vinther, J.** and Webb, S. M. and Gearty, W. and Shawkey, M. D. 2013. Melanin Concentration Gradients in Modern and Fossil Feathers. *PLoS ONE* **8**, e59451. [19] (40%)^
3. Vitek, N. S and **Vinther, J.** and Schiffbauer, J. D. and Briggs, D. E. G. and Prum, R. O. 2013. Exceptional three-dimensional preservation and coloration of an originally iridescent fossil feather from the Middle Eocene Messel Oil Shale. *Paläontologische Zeitschrift*  1-11. [19] (30%)^

2012

1. Longrich, N. R., **Vinther, J.** Meng, Q.-J., Li, Q.-G. and Russel, A. P. 2012, Primitive Wing Feather Arrangement in *Archaeopteryx lithographica* and *Anchiornis huxleyi,* *Current Biology*, **22**, 1-6. [http://dx.doi.org/10.1016/j.cub.2012.09.052. [40](http://dx.doi.org/10.1016/j.cub.2012.09.052.%20%5B40)] (35%)^
2. **Vinther, J.**, Jell, P., Kampouris, G., Carney, R., Racicot, R.A. and Briggs, D.E.G. 2012. Convergent evolutionary history in early chitons- the origin of multiplacophorans. *Palaeontology* **55** 1007-1019. DOI: 10.1111/j.1475-4983.2012.01180.x [17] (80%)^
3. Glass, K., Ito, s., Wilby, P.R., Sota, T., Nakamura, A., Bowers, C. R., **Vinther J.**, Dutta, S., Summons, R. E., Briggs, D. E. G., Wakamatsu, K. and Simon, J. D. 2012. Direct chemical evidence for eumelanin pigment from the Jurassic period. *PNAS* **109**, 10218-10223, DOI: 10.1073/pnas.1118448109. [110] (10%)^
4. Mangano, M.G., Bromley, R.G. Harper, D.A.T., Nielsen, A.T., Smith, M.P & **Vinther, J.** 2012. Nonbiomineralized carapaces in Cambrian seafloor landscapes (Sirius Passet, Greenland): Opening a new window into early Phanerozoic benthic ecology. *Geology* **40**, 519-522. [30] (10%)^
5. **Vinther. J.** Sperling, E. A., Peterson, K. J. and Briggs, D. E. G. 2012. A molecular paleobiological hypothesis for the origin of aplacophoran molluscs and their derivation from chiton-like ancestors. *Proceedings of the Royal Society B* **279**, 1259-1268. [78] (90%)^
6. Li, Q-G., Gao, K-Q., Meng Q-J., Clarke, J. A., Shawkey M. D., D’Alba, L., Pei, R., Ellison M., Norell M. A., **Vinther J.** 2012. A new specimen of *Microraptor* and the evolution of iridescent plumage color. *Science* **335**, 1215-1219. [124] (40%)^
7. Carney, R., **Vinther, J**. Shawkey, M. D., D'Alba, L., Ackermann, J. 2012. New evidence on the color and nature of the isolated *Archaeopteryx* feather. *Nature Communications* **3**, published online January 24th, article # 637. [63] (65%)^
8. Eibye Jacobsen, J. and **Vinther, J**. 2012. Reconstructing the ancestral annelid. *Journal of Zoological Systematics and Evolutionary Research* 50, 1439-0469. [15](50%)^

2011

1. **Vinther, J.**, Eibye-Jacobsen, D.E. and Harper, D.A.T. 2011b. An Early Cambrian stem Polychaete with pygidial cirri. Biology Letters. Early Online. doi:10.1098/rsbl.2011.0592 [46] (90%)^
2. Kröger, B., **Vinther. J.** and Fuchs, D. 2011. Cephalopod origin and evolution: A congruent picture emerging from fossils, development and molecules. *Bioessays* **33** (8), 602-613. DOI: 10.1002/bies.201100001. [177] (50%)^
3. **Vinther, J.**, Smith, M. P. and Harper, D. 2011a. Vetulicolians from the Lower Cambrian Sirius Passet Lagerstätte, North Greenland, and the polarity of morphological characters in basal deuterostomes. *Palaeontology* **54**. 711-719. doi: 10.1111/j.1475-4983.2011.01034.x. [31] (70%)^
4. D’Alba, L., Saranathan, V. Clarke, J. A., **Vinther, J**., Prum, R. O. and Shawkey, M. D. 2011. A novel nanofibre-based structural colour in blue penguin feathers. *Biology Letters*. February 9, 2011, doi: 10.1098/rsbl.2010.1163. [36] (20%)^

2010

1. Clarke, J. A., Ksepka, D. K., Salas-Gismondi, R., Altamirano, A.J., Shawkey, M. D. D’Alba, L., **Vinther, J.,** DeVries, T. J., Baby, P. 2010. The evolution of the shape and color of giant penguin feathers. *Science* **330**, 954-957*.* [137] (25%)^
2. Van Roy, P., Orr, P., Botting, J., Muir, L. **Vinther, J.**, Lefevbre, B., Hariri, K. and Briggs, D. E. G. 2010. Ordovician faunas of Burgess Shale type, *Nature* **465**, 215-218. [198] (10%)^
3. **Vinther, J.** and Rudkin D. 2010. The first articulated specimen of *Plumulites canadensis* (Woodward, 1889) from the upper Ordovician of Ontario, with a review of the anterior region of Plumulitidae (Annelida: Machaeridia). *Palaeontology* **53,**327–334.[10] (85%)^
4. Sperling, E. A. and **Vinther, J.** 2010. A placozoan affinity for *Dickinsonia* and the evolution of late Proterozoic feeding modes. *Evolution and Development*. 12:2, 201–209. [112] (50%)^
5. Li, Q-G., Gao, K-Q., **Vinther, J.**, Shawkey, M.D., Clarke J.A., D`Alba L., Meng, Q., Briggs D.E.G., Prum, R.O. 2010. Plumage color patterns of an extinct non-avian dinosaur. *Science* **327**, 1369-1372. [197] (60%)^
6. **Vinther, J**., Briggs, D. E. G., Clarke, J., Mayr, G. and Prum, R. O. 2010, Structural coloration in a fossil feather. *Biology Letters* **6,** 128-131. [105] (75%)^

2009

1. Sperling, E. A., **Vinther, J.**, Moy, V., Wheeler, B. M., Semon, M. Briggs, D.E.G. and Peterson, K. J. 2009. MicroRNAs resolve an apparent conflict between annelid systematics and their fossil record. Proceedings of the Royal Society B **276**, 4315-4322. [55] (35%)^
2. **Vinther, J.** and Briggs, D.E.G. 2009. Machaeridian locomotion. *Lethaia* **42**, 357-364. [13] (70%)^
3. **Vinther, J.** 2009. The canal system in sclerites of Lower Cambrian *Sinosachites* (Halkieriidae: Sachitida): Significance for the molluscan affinites of the sachitids. *Palaeontology* **52**, 689-712. [35] (100%)

2008

1. **Vinther, J.,** Briggs, D. E. G., Prum, R. O. and Saranathan, V. 2008 The colour of fossil feathers. *Biology Letters* **4**, 522-525. [146] (85%)^
2. **Vinther, J.** Van Roy, P. and Briggs, D. E. G. 2008. Machaeridians are Palaeozoic armoured annelids. *Nature* **451**, 185-188. [72] (80%)^

2006

1. Kenrick, P and **Vinther, J.** 2006. *Chaetocladus gracilis* n. sp., a non-calcified Dasycladales from the Upper Silurian of Skåne, Sweden. *Review of Palaeobotany and Palynology* **142**, 153-160. [15] (35%)

2005

1. **Vinther, J.** and Nielsen, C. 2005 The Early Cambrian *Halkieria* is a mollusc, *Zoologica Scripta*, **34**(1), 81-89. [97] (65%)^
2. *Non-peer Reviewed Popular Articles*
3. **Vinther, J.** July 2018. The true colour of dinosaurs. Scientific American (reprinted with some edits).
4. **Vinther, J.** March 2017. The true colour of dinosaurs. Scientific American.
5. **Vinther, J.** Fall 2011. Siriuspasset- Den Kambriske Explosion I fuldt flor (Siriuspasset – The Cambrian Explosion in full bloom), Geologisk Nyt, October issue (published January 2012).
6. **Vinther, J.** Spring-Summer 2010. An ancient armored worm brought to life. Yale Environmental News, 15(2), 10-11.
7. **Vinther. J.** Fall-Winter 2009-2010. Dinosaurs in Technicolor. Yale Environmental News, 15 (1), 22.
8. **Vinther, J.** 2010. Dinosaurer i Technicolor (Dinosaurs in Technicolor), Geologisk Nyt, February, 4-9.
9. **Vinther, J.** 2008. Pansrede fossile børsteorme (Fossil armoured bristleworms). DYR

(Animals, journal title), Zoologisk Museum 1, 6-9.

1. **Vinther, J.** 2005/2006 - 2006/2007. Den Kambriske Eksplosion; Dag fem I skabelsesberetningen (The Cambrian Explosion; the fifth day in the story of creation) Dansk Naturhistorisk Forenings Årsskrift (Danish Natural History Society, "Yearly Magazine"), 16 and 17, 9-23.
2. **Vinther, J.** og Jørgensen, A. F. 2005. Undervandspalæontologi og eremitkrebs som liebhavere (Translated title: Underwater palaeontology and hermit crabs living in old houses) Varv 2, 22-26.
3. **Vinther, J.** 2004. *Halkieria* - et fossil fra Nedre Kambrium (Halkieria- a fossil from the Lower Cambrian) Varv 4, 3-15
4. *Blogs and online articles*

I have always seen it as a duty to try and reach a broader audience with my work. I have most recently written a Scientific American article that they wished to reproduce for another special edition. This work has been widely read and applied; for example, the blog article below (*The Ancestor of Dinosaurs had four wings*) has been used every year for the last six years in the year 9 Danish exam.

2016***Penis worm mouth monster: how we solved a prehistoric myster****y.* <https://theconversation.com/penis-worm-mouth-monster-how-we-solved-a-prehistoric->mystery-66153

2015 ***Fossils help to reveal the true colours of mammals for the first time*.** https://theconversation.com/fossils-help-to-reveal-the-true-colours-of-extinct-mammals-for-the-first-time-48294

2010 ***The hunt for the oldest multicellular organisms*.** https://videnskab.dk/naturvidenskab/jagten-paa-de-aeldste-flercellede-organismer

2010 ***Sex, the clones will take care of that*.** https://videnskab.dk/naturvidenskab/sex-det-klarer-klonerne

2010 ***Is parallel evolution evidence for the existence of God?*** https://videnskab.dk/naturvidenskab/er-parallel-evolution-bevis-paa-guds-eksistens

2009 ***The Ancestor of Dinosaurs had four wings.*** <https://videnskab.dk/naturvidenskab/fuglenes->forfader-havde-fire-vinger

2009 ***microRNAs, small genes with great potential*.** <https://videnskab.dk/naturvidenskab/mikrorna-smaa-gener-med-stort-potentiale>

1. *Research grants:*

2018 **KOPRI**, Greenland RFP. Collaborator (£200.000). I co-plan the field programme and describe fossils. This year included a NERC DTP PhD student of mine.

2017 **KOPRI**, Greenland RFP. Collaborator (£280.000). I co-plan the field programme and describe fossils.

2016 **KOPRI**, Greenland RFP. Collaborator (£200.000). I initiated this collaboration with the Korean polar research institute.

2016 **NERC,** BETR—Sino-UK collaboration grant. Co-I (£280.000). Together with P. Donoghue and D. Pisani, we are working on a molecular palaeobiological framework for this collaboration.

2016 **Royal Society Research grant**. (£14.600)

2015 **Leverhulme Trust Research Grant.** The Exceptional early Jurassic Fossils of Strawberry Bank, Somerset. Co-I, main PI Michael J. Benton (£250.000). I provided ideas to how the taphonomy of the locality and the exceptional fossils could be done.

2012 **National Geographic Waitts grant.** A colourful window to the Tertiary explosion of mammals. PI. ($14.900).

2011 **Agouron Foundation**. Sirius Passet field trip. Collaborator (DKK 900.000)

2011 **Carlsberg Foundation**. Sirius Passet field trip. Junior Co-PI (DKK 500.000)

2009 **Geocenter grant**. Sirius Passet field trip. Collaborator (DKK 1.300.000)

2008 **Carlsberg foundation.** Elucidating molluscan evolution using microRNAs and molecular sequencing. PI. (DKK100.000 ).

I have been co-investigator of four additional National Geographic grants, and I have assisted writing an NSF grant that got funded while still a PhD student. Also, in this competitive funding environment, I have driven my research forward by attracting, recruiting and enabling the funding of PhD students (total value > £315.000). I have supported those students, for whom travel is critical, via well-funded international collaborations.

*(iii) Research awards: Significant awards under £10,000*

2016 **PALASS research grant**, exploring fossil ink. *PI* (£6.200)

2009 **John F. Enders Fellowship,** Yale University. To conduct studies on early molluscan evolution. ($1000).

2008 **Yale Center for Field Ecology Pilot grant**,YaleUniversity. To conduct fieldwork in the Early Ordovician rocks of the AntiAtlas Region of Morocco. ($2000).

2007 **Malacological Society of London.** To conduct molecular biological research on chitons and aplacophorans. (£1000).

2006 **Oticon Foundation**, to support my relocation to from Denmark to Yale University, USA (ca. £2400).

2005 **Oticon Foundation**, to support attendance at a conference in China (ca £900)

2004 **Iapetus Steenstrup scholarship**, to support fieldwork in East Greenland (ca £1200)

2004 **H.C. Kragh Jakobsen scholarship**, to support fieldwork in East Greenland (ca £1800)

*(iv) Indicators of External Recognition*

**Committee and Council Membership, Editorships**

**2017-** Committee member of the Danekræ Board, Denmark

**2017-** External examiner at Imperial College

**2016-** Editorial Board, Proceedings of the Royal Society B

**2014-** Editorial Board, BMC Evolutionary Biology

**2014-** Grant reviewer for the German Science Foundation, DFG

**2013-** Grant reviewer for the National Science Foundation (NSF) the USA

**2013-** Grant reviewer NERC

**2014-** Grant reviewer for the Leverhulme Trust

**2013-** Grant reviewer National Geographic

**2013-** Article reviewer for Nature

**2014-** Article reviewer for Science

**Other measures of esteem**

**2018** Dinner invitation at the Moroccan embassy in Denmark

**2018** Invitation to write a review for Annual Reviews of Earth and Planetary Sciences

**Featuring in popular media**

**2018 Featured in book,** “Rise and Fall of Dinosaurs” by Stephen Brusatte.

**2018 Featured in Science show,** ARD “W wie Wissen”, August 2018.

**2017 Featured in article**, National Geographic magazine “Why do Octopuses remind us so much of Ourselves?”, Author: Olivia Judson.

**2017 Featured in article**, National Geographic magazine “The amazing dinosaur Found (accidentally) by miners in Canada”, Author: Michael Greshko.

**2017 Featured in book,** “Squid Empire” by Dana Staaf

**2015 Featured in book,** “Spirals in Time: the secret life and Curious afterlife of molluscs” by Helen Scales.

**2015 Featured in the textbook,** “Tools for Critical thinking in Biology” by Stephen Jenkins.

**2011 Starring in a documentary,** National Geographic television “Dinomorphosis”, Producer Jenny Kubo

**2011 Starred in a documentary,**  Japanese television. I have no idea what it was for.

**2013 Featured in the text book,** “Evolution—making sense of” by Douglas Futuyma.

**2012 Featured in Popular science book,** “The Tangled Bank: An introduction to evolution” by Carl Zimmer.

**2012 Featured in the text book,** “Evolution” by Carl Zimmer and Doug Emlen.

**2011 Featured in article**, National Geographic magazine “Evolution of Feathers”, Author: Carl Zimmer.

**2011 Featured in article,** National Geographic Online “True-Color Dinosaur Revealed- First Full Colour rendering” Author: Chris Sloan (National Geographic Mag. Senior Editor)

**2010 Featured in book,** “Written in stone” by Brian Switek.

**PhD and MSc degrees examined**

**Internal Examiner 2012-2018**: Bruno Perreira, Joseph O’Reilly, Jennifer Greer, Konstantinos Michalis, Chris Rogers, Richard Kelly.

**External Examiner 2019-**: Samantha Lee Preslee, University of York.

**External Panel Member 2013:** Lisa Sanchez (Scientific Illustration MSc, Maastricht University, Holland).

**Invited Lectures (accepted, unless indicated otherwise)**

I have participated and presented at approximately 35 international conferences since 2004.

This is a selected (non-inclusive) list of invited presentations.

**2019** **Keynote Speaker**: Annual Meeting for the German Paleontology (Sept 2019). On Comb Jelly origins.

**2019 Linnean Society**, London (January 2019)

**2019 GEUS** Danish Geological survey, (Forthcoming)

**2018** **Keynote Speaker**: 111th Annual Meeting for the German Zoological Society (DZG) (Sept 2018). On fossil colour.

**2018 Invited speaker**: “Emergence of Life”, All Souls College, Oxford. (Sept 2018)

**2018 Biological Society,** University of Bristol, on dinosaur colour.

**2018 Invited speaker,** Wine and Science (Vin og Videnskab), a public event coordinated by the Natural History Museum, Denmark. I talked on Dinosaur Colour together with the Palaeoartist, Luis Rey. There were more than 350 attendees that paid admission for the event. (March 2018)

**2018** **Invited speaker,** South Danish University**.** Departmental talk on fossil colour. Department of Biology. (Jan 2018)

**2017 Departmental talk,** MIT, fossil colour. (Nov 2017)

**2017 Departmental talk,** Yale University, fossil colour. (Nov 2017)

**2017** **Invited Speaker**: Geological Society of America “Exceptionally preserved Proterozoic-Early Palaeozoic fossils”, Seattle (Oct. 2017)

**2017 Bath geological Society**, Fossil colour. (April 2017)

**2016 NNF centre for Basic Metabolic Research.** Talk on fossil colour. Invited speaker for their away day. (Nov 2017)

**2016** **Novo Nordisk.** Fossil colour. Special speaker for awards ceremony including the Danish Minister of Science. (Nov 2017)

**2016 University of Newcastle**, Opening of a mass spectroscopic facility, to talk about mass spectroscopy and fossil colour. (Oct 2016)

**2016 Pint of Science,** Fossil colour and reconstructing Psittacosaurus. Joint popular talk with Robert Nicholls (Palaeoartist). (May 2016)

**2016 Departmental talk,** Harvard University, two job talks (April 2016)

**2015 Departmental talk,** University Bath, Fossil colour and the evolution of Dinosaurs. (December 2015)

**2015 Clifton Antiquarian Society**,Fossil colour. **(**Nov 2015)

**2015 Invited speaker,** LinneanSociety. The joy of discovering the natural world. (September 2015)

**2015 Invited speaker**, Systematics Association Annual Meeting. Fossil molluscs. (August 2015)

**2015** **Keynote** **speaker**. International Symposium of Palaeohistology**.** (July 2015).

**2015** **Invited symposium speaker**, Rank prize funds, Symposium on iridescence. British Lake District. (April 2015)

**2015 Best of Bristol**. Knowing the Impossible: The colour of dinosaurs. Invited lecture voted for by student societies at the UoB. Joint lecture with Michael Benton. (Feb 2015)

**2014** **Departmental Talk**. Birmingham University. Fossil colour and evolution of birds and dinosaurs. (Nov 2014)

**2014**: **Invited Speaker** (Trento, Italy. 33rd Meeting of the Willi Hennig Society).

**2014** **Invited speaker for lecture series,** Leeds University, The early Evolution of Molluscs.

**2014** **Departmental Talk.** Leicester University, Fossil colour and evolution of birds and dinosaurs. (January 2014)

**2013** **Departmental Talk**. Oxford University. Fossil colour and evolution of birds and dinosaurs. (November 2013)

**2013 Invited speaker for lecture series.** Leeds University, The early Evolution of Annelids,

**2012** **Departmental Talk,** University of Akron. The early evolution of molluscs. (April 2012).

**2012** **Austin Paleontological Society**. Cambrian and Ordovician Lagerstätte and early

animal evolution.

**2011** **Tübingen University**. Annual lecture funded by A. Seilacher's Craafoord Prize fund.

The discovery, preservation and utility of fossil melanin.

**2011** **Tübingen University**. Annual lecture funded by A. Seilacher's Craafoord Prize fund.

New evidence on the color, ultrastructure, and nature of the isolated Archaeopteryx feather and the evolution of feathers and colors of Birds.

**2010** **New York Paleontological Society**. Early Molluscan Evolution - how molecules a d

fossils can be used to reconstruct the evolution of aplacophorans, chito … and cephalopods.

**2009 Copenhagen University** – Palaeontological Society. Armoured worms and soft

feathers.

**2006 Copenhagen University** – Geological Museum. The Cambrian Explosion.

**2005 Copenhagen University** – Danish Natural History Society. The Cambrian

Explosion.

*(vi) Related administration*

**Managing resources:** I have managed several research grants as a PI as well as PhD fellowships. I have also assisted colleagues with obtaining funding both in the department, the country and elsewhere.

**Managing activities:** I have a lab with four PhD students and recently six concurrently. Three have successfully graduated and continued their career. I am the lead coordinator for the upcoming Palass meeting in Bristol with 315 attendees. I have arranged a workshop at Bristol with funds from Dean Jon Keating’s Black Swan initiative that resulted afterwards in a £20.000 grant from National Geographic (PI Uwe Balthasar, I was Co-PI) to research Early Cambrian sites of exceptional preservation in British Columbia.

**Managing People**: I have/had 8 PhD students, 1MScsc students, 1 Msci, 4RMres studentseight 8 interns, 22 practical project students (spanning two Schools) and a similar number of literature review students. I take mental healtseriouslyus and have ensured that people in my group felt comfortable to come and tell me if they needed help and I ensured that they followed the appropriate channelsAhe large number of PhD-led publications (25) and even MSc and MSci-led publications (10) is a testament to my professional and pastoral abilities to get people to strive.

**(8) ACADEMIC LEADERSHIP AND CITIZENSHIP**

I am involved imanyof ways in enhancing and supporting the discipline of Palaeontology and more broadly Evolutionary Biology. wasam running the Palaeontological Association Annual Meeting in Bristol with 300 delegates in Decembr, 2018. At the university level, I collaborate with academics in Chemistry, Experimental Psychology, Physics, Biology and Earth Sciences and hence build bridges between departments.

*(i)* *In the discipline*

2018 **Organiser**, Palaeontological Association Annual Meeting (~£200.000 to the university and the township)

2018 **Industry partnership**, I have developed a collaboration with IONOPTIKA to have a PhD student with the company as CASE partner exploring a new Time of Flight Secondary Ion Mass Spectrometer to develop it for use in palaeontology and histology/biology.

2017- **Board member**, Danekræ commission, Danish Government. This Board evaluates finds of fossils and meteorites made by the public and decides if they should become Danekræ. This is an important law in Denmark that ensures that exceptional finds will not disappear into collections or sold to private collectors; as such, this ia s prestigious and highly regarded role.

*In the public understanding of the discipline*

2017 **Public lecturing,** I have spoken at the Centre for Metabolomics at the University of Copenhagen. Hence, reaching out to other disciplines.

2016 **Mini museum exhibit**. I assisted with the making "The smallest mollusc museum", which is now showcased at hospitasand , libraritc.

2016 **Public lecturing,** I have spoken for an event at Novo Nordisk, a big medicine company in Denmark. Hence reaching out to other disciplines.

2016 **Museum Exhibit**, I was involved in making an exhibit on Colour and Vision with the NHM, London. I helped with developing exhibit materia, s and I also was filmed for a web site cast.

2010 **Television**I w Was involved in the making of a television show for National Geographic. I was filming in New York, China twice and New Haven CT. The title of the episode was ‘Dinomorphosis’.

2008 **Showcase**, I was involved in makinaan showcase on a fossil annelid from the Ordovician of Morocco that we had recently published on in Nature. The showcase was presented in the entrance to the Yale Institute for Biosphere studies.

2007 **Museum Exhibit**, I was involved in making an exhibit on Sirius Passet and the Cambrian Explosion. I consulted on model making for the recreation of the Cambrian Sea. I did a sit down for a video that was streamed on the exhibit. I provided fossil material from China for their exhibit.

*(ii) In the University*:

As Director of Public Engagement in the School of Earth Scienc,es I lead many of the Schools’ activities in outreach and development of public engagement with school members and their research programme. I also engage members of the school in going out to schools, providing education in Geology subjects.

2019 **Public Engagement/outreach**, I developed a stand on fossils and ‘how to become a palaeontologist’ for the Festival of Nature in Bristol. The bone excavation exercise became a highly commented on and frequented exercise at the event.

2017- **Director of Public Engagement,** School of Earth Sciences

2018 **Public Engagement/outreach**, I developed a stand on climate change for FUTURES at We the Curious, educating both school children about it and its effect and showed how different activities and food have different carbofootprintnt.

2018 **Outreach**, I helped man a stand on palaeontology and volcanology at the Festival of Nature. I also gave a lightning talk about geological time in which I got the audience to participate.

2016- **Research committee member**, School of Earth Sciences

2016-2017 **Deputy Graduate Tutor**, School of Biological Sciences

2013-2015 **Senior Tutor**, School of Biological Sciences

*(iii) Professional activities outside the University*

* *External examiner* at Imperial College and NHM, MSc course in Biodiversity and Biosystematics
* Society memberships
* *Editorial board: Proceedings B, BMC Evolutionary Biology*
* *Reviewing:* Nature, Sciences, PNAS, Current Biology, Nature Ecology and Evolution, Nature Communications, Proceedings B, Biology Letters, Palaeontology, Geology, Lethaia among others
* *Organisation and running of societies*: I have organised the Annual Meeting for the Palaeontological Association in Bristol in 2018 with 320 delegates.
* *Continuing professional development*: I took the first aid course, I have attended workshops on supervision of PhD students, becoming more efficient in mworkplacece, grant writing.

*(iv) Contributions to society:*

I have taught at the People’s University (Folkeuniversitetet) in 2005. This is an arena for people with anbackgroundnd where they can takuniversity-levelel courses. My cohort included retired librarians, plumbers, forklift drivers among others. I taught general palaeontology.

I have visited schools and taught geology and palaeontology in Denmark ithe n year 2,3 and 10.

*(v)* *Entrepreneurship*: None

*(vi) Good citizenship:*

I carry oumanyof administrative roles, focusing at the momenofon being a member of the research committee on behalf of the Palaeobiology group and Director of Public Engagement in Earth Sciences. Previously I have been deputy graduate director and senior tutor. I am a diligent teacher and tutor and perform these with utmost professionalism and commitment; this has included creating two units and significant leadership on a third – as well as contributing lectures to one other unit. Durinmy a colleagues' sabbatic,al I helped teach his unit. I discuss grant ideas with colleagues and read their proposals. Due to my several publications in Science and Nature (nine in total), I often look at people's cover letters to ensure that it is slanted well. I frequently engage with and mentor more junior faculty, discussing their research agenda and sharing lessons learned from mn career.

***Future plans***

I wish to develop the Director of Public Engagement role. I am devising different exhibits and various types of outreach material for different ages for school visi ands, festiva.c. I have made an exhibit on Climate Change and will in the coming years develop similar material thaengagesge with different disciplines within the school: Deep Earth, Volcanology, Palaeobiology.

Furthermore, I am currently negotiating the involvement of the Palaeobiology group in a major TV production, which is still confidential. This will provide consultation based involvement of several members of the group and provide significant global exposure to the research group.

**Appendix 1: Complete list of peer-reviewed publications**

Refereed academic Journal Papers [times cited, Google Scholar] (% contribution). \* denotes authors who are PhD students and researchers in my research group, and it is worth noting thastudents and PDRAs have led many of the 32 publications since my promotion to SLAs. **^** denote publications with international coauthors and **“** denote publications with non-academic co-authors. NOTE: Atypical to my field, I seek to make senior authors last author. However, some studies will have a slightly different order due to request from coauthors and different customs (e.g. when collaborating in China).