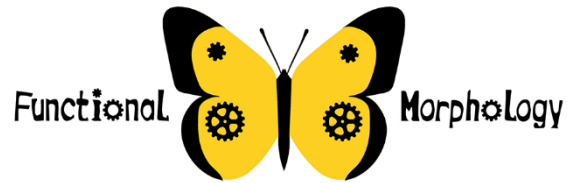




Accepted Contributions

Contents

Oral Presentations	2
Functional Morphology Session	2
MorphoEvoDevo Session	4
Morphology in Deep Time Session	5
Morphology, Taxonomy & Phylogeny Session.....	7
Molecular Basis of Morphological Diversity Session.....	9
Senses, Neurons & Behavior Session	10
Technological Advances in Microscopy & Imaging Session.....	11
Posters	11
Poster Flash Talks	15



Phenotypic plasticity in body morphology during development in the European shore crab

Florian Braig

How dragonfly larvae catch prey: functional morphology and biomechanics

Sebastian Büsse

Biomechanical implications of shape variation in ectatommine ants sting

Alexandre Casadei-Ferreira

Insect antennae: how morphology controls movement

Griffin Donley

Movement and storage of nematocysts across development in the nudibranch *Berghia stephanieae*

Jessica A. Goodheart

A unique yet technically simple type of joint allows for the high mobility of scorpion tails

Alice Guenther

Unravelling the adaptive benefit of predator-induced defences

Martin Horstmann

Functionally graded cuticle in Polyneopteran head capsules

M. Andrew Jansen

Desmosomal connectomics of somatic musculature in a marine annelid

Sanja Jasek

Evolution of morphological diversity in ant mandibles

Julian Katzke

Architectural constraints on speciation? Remodeled homes and adaptive radiation in hermit crabs

Jakob Krieger

Functional gradients in gastropod radular teeth reflect trophic adaptations, a combined approach

Wencke Krings

Adaptations for gas exchange enabled the elongation of lepidopteran proboscises

Matthew S. Lehnert

Microscopical morphology of the gill of *Aplysia depilans* (Mollusca, Euopisthobranchia)

Alexandre Lobo-da-Cunha

Nanofiber processing by cribellate spiders

Marco Meyer

Fluid feeding in millipedes and its consequences for their internal organs

Leif Moritz

Feeling with a fingernail: Extero-mechanoreceptive sensilla in the tarsal claws of the wasp spider *Argiope bruennichi* (Arachnida: Araneae)

Carsten H.G. Müller

On springtails (Hexapoda: Collembola): A morphofunctional study of the jumping apparatus

Fábio G. L. Oliveira

Everything is not like in everyone: coenocytes and exaptations in cyclostome bryozoans

Andrey Ostrovsky

Connective tissue patterns in dolid nudibranch mantle

Brian K. Penney

Transition of metanephridial systems into protonephridial systems in annelid species with reduced coelom and blood vascular system

Günter Purschke

Investigating the 3D skeletal architecture of deep-water corals in relation to hydrodynamics

Giovanni Sanna

A comparison of the functional morphology of the reproductive systems of three 'swimming crabs'

Nicole Schröter

The evolution of salp colony architectures and its consequences for multi-jet locomotion

Alejandro Damian-Serrano

Miracidia with passive strategy of infection. Obscured life of highly miniaturized organisms (Trematoda: Digenea)

Peter Smirnov

Mouthparts and internal head morphology in rove beetles (Coleoptera, Staphylinidae)

Erich L. Spiessberger

Investigation of the topography and material properties of the adhesive secretion of Phasmatodea

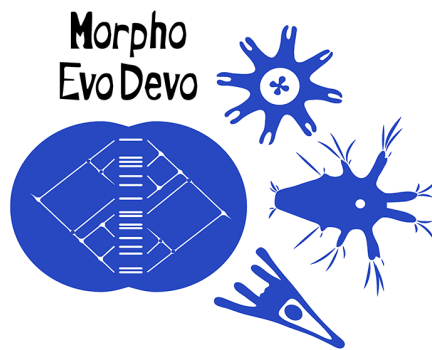
Julian Thomas

The formation and putative function of microscopic spheres on the cuticular surface of the terrestrial isopod *Porcellionides pruinosus*

Miloš Vittori

Are centipedes heavy metal? Investigation of cuticular components and metals in the centipede forcipule

Simon H. Züger



Single-Cell atlas in the annelid *Pristina leidyi*

Patricia Álvarez-Campos

Structure, developmental fate and evolutionary transformations of head kidneys in Annelida

Thomas Bartolomaeus

How to build a leg: regeneration and development in post-embryonic stages of *Scutigera coleoptrata* (Chilopoda)

Iulia Barutia

Making stars: understanding the drivers behind different larval strategies through investigation of starfish at micro and macroscopic scales.

Hugh Carter

How do mud dragons (Kinorhyncha) grow? Insights from an integrative developmental study

Maria Herranz

Annelid head appendages in a nutshell-lessons from the diversity of anterior head structures in Nereididae

Paul Kalke

Precocious sperm exchange in the simultaneously hermaphroditic nudibranch, *Berghia stephanieae*

Maryna P. Lesoway

The acoel body plan. Morphology and Genomics.

Pedro Martinez

Structure and development of the tracheal system in Onychophora (velvet worms)

Ivo S. Oliveira

Development of the chaetodermomorph aplacophoran *Scutopus schanderi* (Mollusca, Caudofoveata)

Emanuel Redl

Tiny 3D printers of bristle worms - the dynamic development of annelid chaetae

Ekin Tilic

Is the prototroch derived from an ancient transitory epidermis in Spiralia?

Jörn von Döhrn

How to reduce body size: a dwarf male's tale

Katrine Worsaae

Hidden within the plant: morphology of fossil xylophagous beetle larvae

Ana Zippel



Multiple losses and reacquisitions of blood feeding in non-biting midges

Viktor Baranov

Serial Homology and segment identity in the arthropod head

Ariel Chipman

Please don't eat me - mechanical caterpillar defences through time

Joshua Gauweiler

Think big – physogastry in 100-million-year-old lacewing larvae

Carolin Haug

Conceptual and practical challenges and chances of using quantitative morphology as a tool for comparing diversity through time – lacewing larvae as an example

Joachim T. Haug

Reproductive strategies within insects - hints for evolutionary reconstructions based on fossils

Marie K. Hörnig

The raptorial appendages of adult praying mantises and predatory lacewings 100 million years ago and today

Christine Kiesmüller

Drifting with trilobites: the invasion of trilobite early post-embryonic stages to the pelagic realm

Lukáš Laibl

Stalked eyes and exopodial gills preserved in the oldest known (480 Ma) horseshoe crabs

Lorenzo Lustri

Phylogenetics and systematics of the trilobite subfamilies Cheirurinae and Deiphoninae: shedding light on the basal relationships

Francesc Perez-Peris

Hidden cuticular microstructures revealed by application of modern microscopy techniques on compressed insect fossils and amber inclusions

Jakub Prokop

Origins of the echinozoan body plan

Jeffrey R. Thompson



Additional information on the morphology of *Rhabdochona essenia* from *Labeobarbus aeneus* in the Vaal River in South Africa as revealed through novel methods.

Annemarië Avenant-Oldewage

Variety is the spice of life: Morphological diversity of digestive systems related to different food sources in Solenogastres (Mollusca, Aplousobranchia)

Franziska S. Bergmeier

The evolution of parasitism in copepods: phylogeny, diversity, and morphology

James P. Bernot

Plumatella fruticosa, the non-plumatellid freshwater bryozoan?

A morphological approach

Julian Bibermaier

Running to success: Ant forelegs were uniquely modified during the Early Cretaceous

Brendon E. Boudinot

Insights in the echinoderm "dark" abyssal biodiversity

Magdalini Christodoulou

Unravelling systematics and phylogenetic position of the boring bryozoan family Penetrantiidae

Sebastian Hellmuth Decker

Phylogeny of armoured microbears (Tardigrada: Echiniscidae): plates, hairs and bristles

Piotr Gąsiorek

'My eyes have seen you...'

Brett Gonzalez

Luminescence as defence – A study on the glowing mucus and the underlying gland system of *Latia neritoides* (Gastropoda)

Sophie Greistorfer

Comparing the morphological characteristics of bryozoans in the genus *Immergentia*

Mildred J. Johnson

Homology of the labium in Remipedia and Hexapoda revisited

Markus Koch

Integrative taxonomy to study syllid annelids in Bermuda

Paula Moreno-Martín

Morphological and molecular analysis of Indo-Pacific *Syllis* annelids

Laia Moreno-Martínez

Phylogenetic significance of the chaetal arrangement in Annelida

Julian Müller

Neurogenesis in the frenulate *Siboglinum fiordicum* (Siboglinidae, Annelida)

Nadezhda Rinskaya-Korsakova

Entoprocta, Small Animals with Big Implications for Lophotrochozoa

Nickellaus G. Roberts

Insights into the morphology of secondary sexual characters of male lithobiid centipedes (Chilopoda, Lithobiomorpha)

Zita Roithmair

Observations on deep-sea *Xenoturbella*

Greg Rouse

Testing the success of palaeontological methods in the delimitation of extant clam shrimp species (Crustacea: Branchiopoda) - an integrative approach

Martin Schwentner

The challenging identification of the meiofaunal cnidarian *Halammohydra*

Lenke Tödter

Evolution of sperm morphology in Macrobiotidea (Tardigrada)

Matteo Vecchi

Meiofaunal diversity in the Barents Sea

Joel Vikberg Wernström

Anatomy of the highly specialized beaver beetle *Platypsyllus castoris* (Leiodidae, Coleoptera)

Margarita I. Yavorskaya



The genome of *Tetrapyrgus niger* reveals a conserved biomineralization protein repertoire over 200 million years of sea urchin evolution

Felipe Aguilera

Ancestral synergy of TGF-beta and MAPK during dorsal-ventral specification in Spiralia

Allan M. Carrillo-Baltodano

A new model to relate echinoderm pentaradial symmetry with the ancestral bilateral symmetry

Laurent Formery

The evolution of blood and haemolymph cells from a penis worm perspective

Andreas Hejnol

Developmental roles of BMP signaling in Cnidaria

Paul Knabl

A neoblast-like cell population in nemertodermatid species *Meara stichopi*

Petra Kovacikova

Phylogenomics reveals deep relationships and diversification within phylactolaemate bryozoans

Ahmed J. Saadi

How to build a bivalve: Lessons from gene expression and single-cell RNA sequencing analyses

David Salamanca-Diaz

Peeling Back the Onychophora: an exploration of the genes in the genome of *Epiperipatus Broadwayi* (Onychophora: Peripatidae) with notes on the evolution of ecdysis

Shoyo Sato

Hox gene expression in juveniles of the nemertean *Lineus ruber*

Katharina Stracke

Old tools for novel tasks: the roles of conserved nuclear receptors in the evolution of phenotypically plastic “teeth” in diplogastrid nematodes

Tobias Theska

Molluscan cell types shed light on the evolution of a complex bilaterian body plan

Tim Wollesen

Genomic underpinnings of sclerite biomineralization in aplousobranchian molluscs

Meghan K. Yap-Chiongco

How to analyze the evolution of gene co-expression across animal development?

Elisabeth Zieger



Mushroom bodies in Annelida

Patrick Beckers

A functional dissection of the neuronal basis of settlement and metamorphosis in the ascidian *Ciona intestinalis*

Marios Chatzigeorgiou

Evolutionary patterns in spatial orientation centres of Heliconiini butterfly brains

Max S. Farnworth

Evolution of odorant receptor repertoire size and tempo across major Hymenopteran lineages

Shubham Gautam

One of the smallest spiralian nervous systems reconstructed at ultrastructural level in the marine annelid *Dimorphilus gyrotilatus*

Alexandra Kerbl

Mechanical feedback by a specialized comb during fibre production in spiders

Clara Lemaire

Parasitic barnacles (Cirripedia: Rhizocephala): puppet masters and their mysterious interactions with the host nervous system

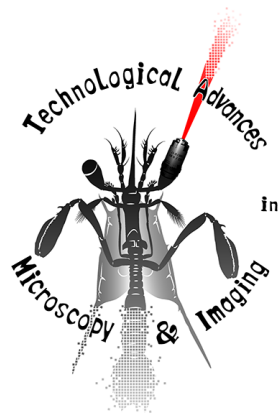
Aleksei Mirolubov

Electrophysiological evidence that the osphradium is a chemosensory organ in bivalves

Ana Rato

Chemosensing in Spiders: an ultrastructural perspective

Mohammad Belal Talukder



High Resolution Computed Tomography for the study and characterization of hard parts in Solenogastres (Mollusca, Aplacophora)

M. Carmen Cobo

Using confocal microscopy to model the first land animals in 3D

Emma J. Long

Using microCT to document macrobdellid leech morphology

Anna J. Phillips

The Darmstadt Insect Scanner DISC3D and its application in the digitization of insect collections

Sebastian Schmelzle

POSTERS

P01 Detailed mapping of embryonic brain morphogenesis in the hemimetabolous insect *Oncopeltus fasciatus*

Nitzan Alon

P02 Morphological variability of the commercial marine shrimps' populations in the most important fishing grounds of Greece

Chryssa Anastasiadou

P03 Morphological variability of the commercial marine shrimps' populations in the most important fishing grounds of Greece

Juliana Bahia

P04 Structural modifications of hindgut epithelium during differentiation coincide with major transitions in *Porcellio scaber* embryonic and postembryonic development

Urban Bogataj

P05 Excretory organs in sea spiders (Pycnogonida)

Ekaterina Bogomolova

P06 Using colour volume rendering for virtually dissecting an animal

Bastian Brenzinger

P07 Ultrastructure of the apical organ of a polyclad larva

Isabel L. Dittmann

P08 Early evolution of Spiralia: arrow worms are showing the way

Jules Duruz

P09 The influence of light on the contraction-expansion behaviour in the demosponge *Tethya wilhelma*

Sarah B. Flensburg

P10 Description of a new species of *Kovalevskiella* (Ostracoda, Limnocytheridae, Timiriaseviinae) from groundwater of the Danube river in Austria.

Santiago Gaviria

P11 High mountain crabs - What does the gonopod morphology tell about the systematics?

Svetlana Grützke

P12 Get a grip – quantitative aspects of claw morphology in clawed lobsters and crayfish

Fenja I. Haug

P13 We are Venom – a quantitative comparison of venom-injecting mouthparts of crustaceans in the wide sense

Gideon T. Haug

P14 Morphology of the olfactory sensory neurons in *Daphnia*

Joshua Huster

P15 Continuous morphospace approach to the Tardigrada eggs' morphology

Valentyna Inshyna

P16 Is *Paramacrobiotus fairbanksi* Schill, Förster, Dandekar & Wolf, 2010 - a cosmopolitan tardigrade?

Pushpalata Kayastha

P17 Evolution and development of glial cells in Annelida

Rabea Klingberg

P18 Myoanatomy of a velvet worm (Onychophora)

Michael Klinger

P19 Blaschkas' glass models of invertebrates in the University of Vienna's zoological collection: preserving a fragile legacy

Simon Engelberger

P20 Ano10 mediates convergent extension and tubulogenesis during notochord

Zonglai Liang

P21 The origin and evolution of striated muscle cells

Oliver Link

P22 Exploring the moulting pathway at the root of Ecdysozoa: Insights from the genome of the priapulan *Tubiluchus corallicola*

Arianna Lord

P23 Digital catalog of Syllidae marine worms from the Iberian Peninsula

Sofía Lucio García

P24 The velvet worm brain—homologies and novelties across panarthropods

Christine Martin

P25 Characterizing the viscoelastic diversity of mesoglea

Lauren Mellenthin

P26 Localization of the circadian clock neurons in a velvet worm (Onychophora)

Niklas Metzendorf

P27 In flagranti - Functional morphology of copulatory organs of helminthomorph diplopods

Benjamin Naumann

P28 The prothoracic repellent glands of neotropical stick insects (Phasmatodea: Pseudophasmatidae)

Marco Niekampf

P29 The larva of *Tubiluchus lemburgi* (Priapulida): a morphological investigation of selected traits

Jan Raeker

P30 New insects from the late Carboniferous of Piesberg extend morphological disparity in Palaeodictyoptera

Katerina Rosova

P31 Shape from Shading as an inexpensive tool to study surface details of even small insect fossils

Mario Schädel

P32 Early development of the olfactory system in *Parhyale hawaiiensis* (Crustacea, Amphipoda)

Johanna A. Seegel

P33 Confocal imaging of loriciferans reveals concealed morphological characters

Martin V. Sørensen

P34 Formation of a cellular square grid in the *Parhyale hawaiiensis* embryo

Beatrice Steinert

P35 Comparative functional mouthpart morphology in selected rove beetles (Staphylinidae)

Benedict Stocker

P36 From essential to selfish: the evolution of tRNA synthetase-based toxin in *Caenorhabditis tropicalis*

Polina Tikanova

P37 A morphology comparison of the reproductive systems between two members of the Panopeidea.

Anne Urban

P38 African cornucopia: discovering the *Milnesium* (Tardigrada, Milnesiidae) biodiversity by the means of integrative taxonomy

Karol Wałach

P39 Morphological diversification of the intertidal snail in the narrow distribution range: a case of *Littorina horikawai* endemic to the western Kyushu, Japan

Daishi Yamazaki

P40 The brain of a giant: 3D-anatomical reconstruction of the brain of *Bathochordaeus stygius*, Garstang 1937 reveals traces of evolutionary miniaturization

Berit Zemann

P41 In the quest for the molecular fingerprint of myogenesis in a sea urchin embryo

Nicolás Zúñiga-Soto

P42 Systematics and Biodiversity of Antarctic Syllidae (Annelida)

Guillermo Ciesielski

POSTER FLASH TALKS

P01 Nitzan Alon

P07 Isabell Dittmann

P09 Peter Funch

P11 Svetlana Gruetzke

P12 Fenja Haug

P13 Gideon Haug

P20 Zonglai Liang

P21 Oliver Link

P23 Sofia Lucio García

P28 Marco Niekampf

P31 Mario Schädel

P32 Johanna Seegel

P37 Anne Urban

P38 Karol Wałach

P40 Berit Zemmann

P41 Nicolás Zúñiga-Soto