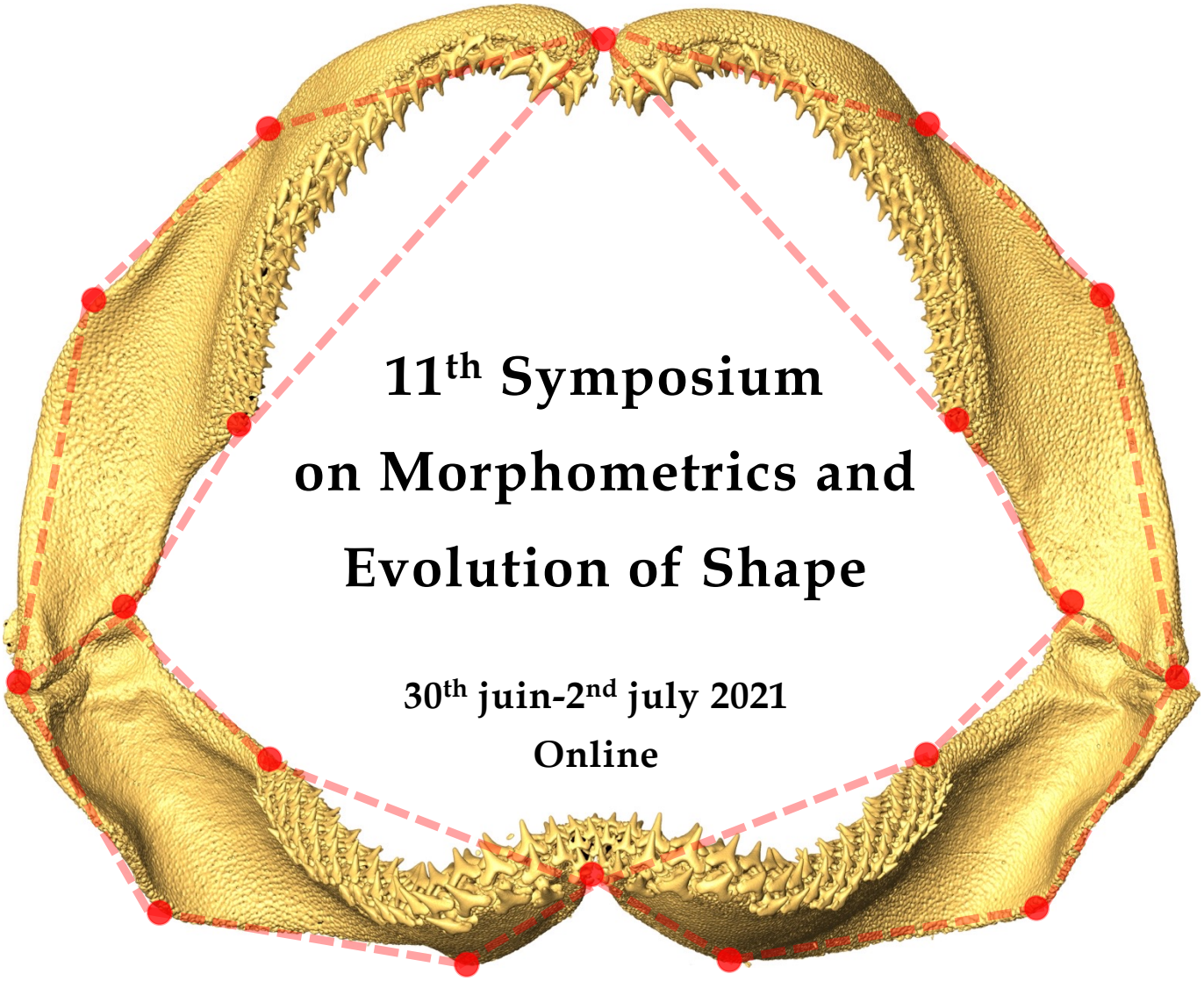

11th Symposium on Morphometrics and Evolution of Shape

30th juin-2nd july 2021

Online

Programme, abstracts and

instructions for participants and panelists

Contact

Julien.claude@umontpellier.fr

Allowen.evin@umontpellier.fr

Table of contents

Foreword

Dear colleague,

Welcome to the the Symposium on Morphometrics and Evolution of Shape (SMEF) 2021. Since about 20 years, this symposium has been organized every two years in France and is open to anyone interested in the evolution of biological forms (paleontology, anthropology, developmental biology, archaeology, medicine, evolutionary sciences, bioinformatics, etc.). It is an opportunity to federate the community around new developments and ongoing applied researches. Because of the current sanitary crisis, the workshop organization has been postponed from 2020 to 2021 and it will be held completely online.

This year, the 11th Symposium on Morphometrics and Evolution of Shape (SMEF) is organised by the Institute of Evolutionary Science of Montpellier but is online. The conference will be held from the 30th of june to the 2nd of july 2021.

In order to facilitate communications and interactions during the meeting, we will use zoom (https://zoom.us/) for oral presentations and discord (https://discord.com) for poster sessions via chat rooms. These applications are freely available and multiOS. It is recommended to install these two applications on your computer well before the congress time. If you do not wish to install them on your computer, they can be used directly on your internet browser. We highly recommend you to test beforehand that they work properly. Sessions will start at 9.00 Paris time zone in order to allow a maximum of worldwide participants to take part in the event. Poster presenters will be allowed a space in discord (https://discord.com/) to interact with participants and a few minutes slot for a brief presentation to the whole audience on zoom. All oral presentations will be given on zoom.

The language for the symposium will be English. After June 15, the online registration module stopped, but late registration can still be done on demand at julien.claude@umontpellier.fr and allowen.evin@umontpellier.fr. Registration will definitely be closing on June 25.

This year, we are honored to welcome Prof. Joan T. Richtsmeier for the inaugural keynote paper. In addition, every days will end by workshops dedicated to softwares, computing development and demonstration. The programme given here is definitive.

We would have highly prefered to organise this event in person in Montpellier (France) as originally planned, but we will hope that we will benefit from this new format to make the event even more outstanting and memorable. We hope this peculiar workshop, held online for the first time, and with a number of participants and number of countries represented never reached before, will be as stimulating as the previous versions and stimulate new exchanges and debates. We know that exchanges are not necessarily easy online but we will do our best to ensure that everyone can participate.

We are looking forward to seeing you soon.

June 24, 2021
Julien CLAUDE & Allowen EVIN

Longer horns and small eyes: how Onthophagus bidens copes with exaggerate male weaponry development (Coleoptera, Scarabaeidae)

Angela Roggero * [1], Philippe Moretto [2], Claudia Palestrini [1]

[1] University of Turin, Department of Life Sciences and Systems Biology – Italy
[2] Catharsius, 2 rue Marcel Sembat, F-83200 Toulon – Catharsius – France

Polymorphism is a relatively common phenomenon in insects and the coprophagous Onthophagini taxa are a fair and well-known example. In this framework, *Onthophagus bidens* (Olivier, 1789) is an especially interesting and so-far unique case in the dung beetles. Its cephalic weaponry showed a complex allometric relationship to body size, with both male and female polymorphism being recently identified in this species. Differential scaling of the measurements of some anatomical traits (head, eye, epipharynx, elytron, hindwing, foretibia, pygidium and aedeagus) with body size has been here tested in the males within a single African population from Ivory Coast. For each of the abovementioned traits the linear model was the better choice for data fitting. The majority of the examined traits increases at increasing body size, even showing different growth patterns. The only exceptions are the aedeagus (specifically, the phallobase and ventral tooth of paramers) and the eye (commonly subdivided into a dorsal and a ventral portion) which are not significantly related to body size. The relationships of these traits and cephalic horn were then tested, showing how in the aedeagus the phallobase share a common pattern with the ventral tooth of paramers, but not with the paramers on the whole. While the development of the dorsal part of the eye is not affected by either body size or horn, the ventral part decreases at the increasing of the horn length. Likely, males allocating many resources in horn development must use fewer resources in the development of other traits, specifically, the ventral part of the eye. Since the dorsal part of the eye is involved in field of view vision and orientation, while the ventral part in short vision (more focused on partner and food search), our results suggest that the males major gave up a better vision to develop longer horns.

Keywords: Allometry, data fitting, body size, horn length, dung beetles, eye

*Speaker