

25TH ANNIVERSARY OF
MUSEUM OF AMBER INCLUSIONS
UNIVERSITY OF GDAŃSK



Fossil Record in Resins and Sediments

BOOK OF ABSTRACTS

UNIVERSITY OF GDAŃSK
23-26 MAY, 2023



FossilRRS Conference



Fossil Record in Resins and Sediments

**25th Anniversary
of Museum of Amber Inclusions
University of Gdańsk**

BOOK OF ABSTRACTS

**University of Gdańsk, Faculty of Biology
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**Organizer:**

Laboratory of Evolutionary Entomology and Museum of Amber Inclusions, Department of Invertebrate Zoology and Parasitology, Faculty of Biology, University of Gdańsk
59, Wita Stwosza St, PL80-308 Gdańsk, Poland

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Jacek Szwedo – University of Gdańsk

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Błażej Bojarski – University of Gdańsk

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WELCOME

The Museum of Amber Inclusions University of Gdańsk is pleased to invite you to celebrate its 25th anniversary and attend the conference *Fossil Record in Resins and Sediments*, which will be held in Gdańsk, Poland, from 23rd-26th May 2023.

Twenty-five years ago, the natural history collection of amber and inclusions, started from modest beginnings – scientific collection of the Diptera inclusions of Professor Ryszard Szadziewski. What revolutionised the collection was the donation of 50 kg of raw Baltic amber, which completely changed the view on amber, its inclusions and its amber taphocoenosis. The uniqueness of the scientific collection of the Museum of Amber Inclusions is in its positioning within the structures of the University. We are not a collection of specimens, musealia that cannot be touched, but a collection where amber is the basis of scientific discovery and research. Twenty-five years ago, we were at the point when interest in inclusions was developing, and the amber market was growing, and we were present at the Amberif Fair, among the amber workers and collectors, at the centre of the amber (and inclusions) fever. The scientific backbone of the Museum is its collection, research facilities and friends among scientists. The flesh is a collaboration with amber workers, collectors and enthusiasts of amber and inclusions. The blood is the circulation of information, data, ideas, and opinions.

New technologies allow us to look more and more closely into worlds hidden millions of years ago in the solidifying drops of resins. It is the 21st century and we are discovering new pages written in the books of amber, its inclusions and its deposits, but also in the stone books of palaeontology. We will not be able to answer more and more questions on our own – cooperation, exchange of information and experience of geologists, palaeontologists and biologists is needed.

The Conference, which is being held at the University of Gdańsk and supported by the Ministry of Education and Science, will offer an outstanding scientific programme thanks to the participants. It is an opportunity to share the current state of knowledge, new working hypotheses, to debate new findings and new tools, to discuss and find new interpretations of existing data and opinions.

It is with great pleasure that we invite all of you in the spring of 2023 to this Conference, we encourage scientific openness, warm discussions, collaboration, and a shared reading of palaeobiology in fossil resins and sediments. We trust that your stay in Gdańsk – the World Capital of Amber and Museum of Amber Inclusions will be a memorable opportunity for both professional and personal satisfaction.

HONORARY PATRONAGE



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ABSTRACTS



BUZZERS FROM THE PAST – THE FIRST MELIKERTINI BEE FROM EOCENE LUBLIN AMBER

W. Celary¹, B. Bojarski² & J. Szwedo^{2,*}

¹*Institute of Biology, The Jan Kochanowski University, Kielce, Poland; ☎ 0000-0001-6395-2680*

²*Department of Invertebrate Zoology and Parasitology, Faculty of Biology, University of Gdańsk, Gdańsk, Poland;*

☎ 0000-0001-6301-7959 (B.B.), ☎ 0000-0002-2796-9538 (J.S.)

**jacek.szwedo@biol.ug.edu.pl*

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A new source of fossil resin with inclusions – Eocene amber from the Górka Lubartowska region (Lublin area, South Eastern Poland) has been recognized. It is a group of clastic deposits accumulated in the Middle and Late Eocene. Amber accumulations are found in marine sediments associated with regressive facies, deposited in a fairly low energy environment and is therefore the sedimentary equivalent of fine clastic formations. Amber bearing sediments are formations of the littoral zone or the shallow silicoclastic shelf¹. Amber found in this area brought several inclusions not reported from similarly aged amber from the Gulf of Gdańsk, Bitterfeld or Ukraine.

Of all the world's bees (Hymenoptera: Apidae), there are none more iconic than the corbiculate bees. The corbicula, or pollen basket, is a specialization of the hind tibia for the transport of pollen, it is formed of a widening and flattening of the hind tibia. Corbiculate bees include the best recognized honey bees and bumble bees, and in tropical countries the familiar stingless bees and orchid bees in the New World². The corbiculate bees form a distinctive monophyletic lineage in the nominate subfamily (Apinae) of the family Apidae. They comprise four extant lineages, each recognized as a tribe: Euglossini (orchid bees), Bombini (bumble bees), Meliponini (stingless bees), and Apini (honey bees)². Interestingly, the corbiculate clade has a substantial fossil record, with its earliest occurrence near the end of the Cretaceous and three extinct tribes Electrobombini, Electrapini and Melikertini disappeared around the Eocene-Oligocene extinction event. These extinct corbiculate lineages include both highly eusocial and primitively eusocial groups, the tribes Electrapini and Melikertini, exhibiting morphologically specialized worker castes like those of Meliponini and Apini.

The tribe Melikertini comprises now 8 genera and 14 species. These bees superficially resemble stingless bees (Meliponini), with a general habitus similar to many small meliponine genera. However, Melikertini differs from Meliponini most noticeably by the complete wing venation (reduced in Meliponini), presence of a supraalar carina (absent in Meliponini), presence of an auricle (absent in Meliponini), absence of a penicillum (present in Meliponini), presence of a single metatibial spur (absent in Meliponini), toothed pretarsal claws, and presence of a well-developed sting (vestigial in Meliponini). Several Melikertini have unusual morphological modifications, peculiar upper extensions of the clypeal base that project upward between the antennae to varying degrees^{3,4}. Here we present the first Melikertini bee from the amber of Górka Lubartowska, representing a new genus and species, also presenting facial modifications and set of other features clearly placing it among Melikertini, but as separate taxon. A piece of amber includes 3 complete and two incomplete specimens of bees representing the same taxon. The Darwinian null hypothesis and single origins of eusociality and highly eusocial behavior among corbiculate bees was

presented³. Extinct corbiculate lineages include both highly eusocial and primitively eusocial groups, the tribes Electrapini and Melikertini, exhibiting morphologically specialized worker castes like those of Meliponini and Apini.

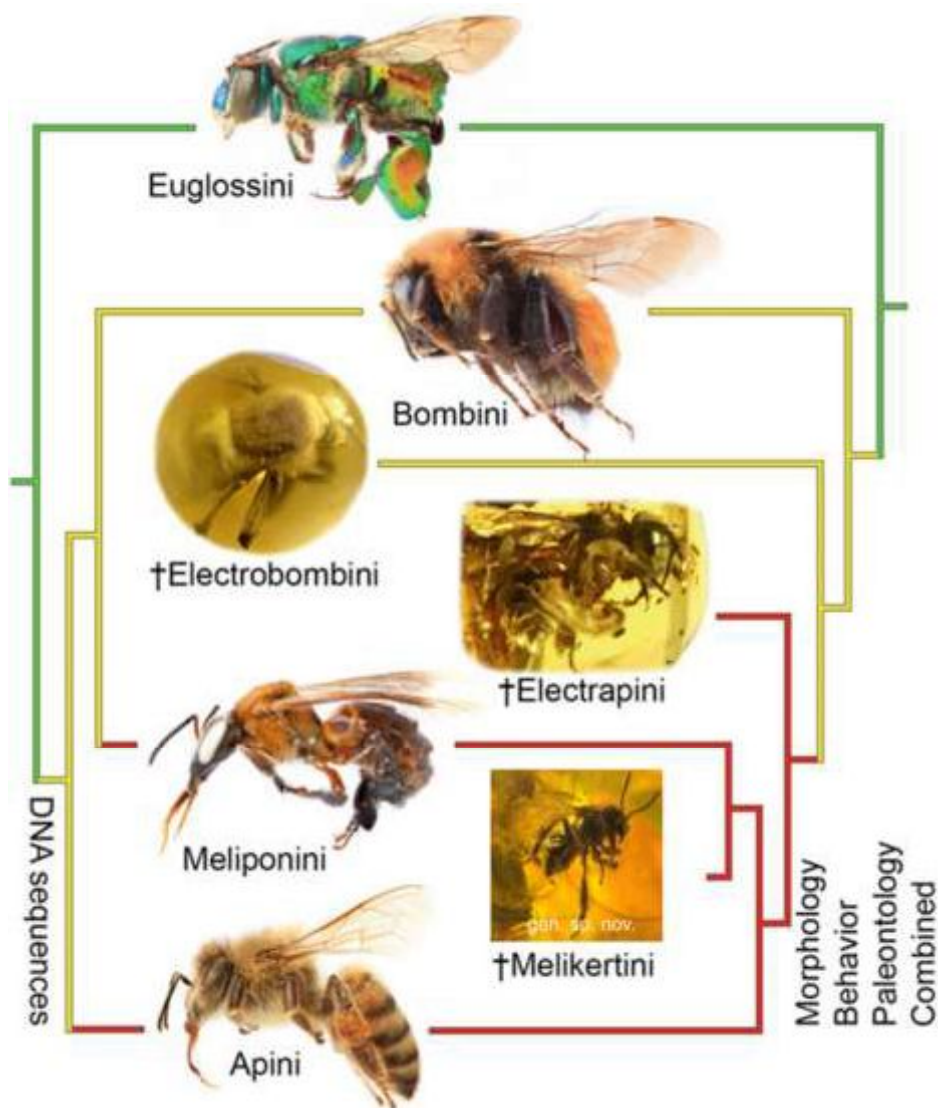
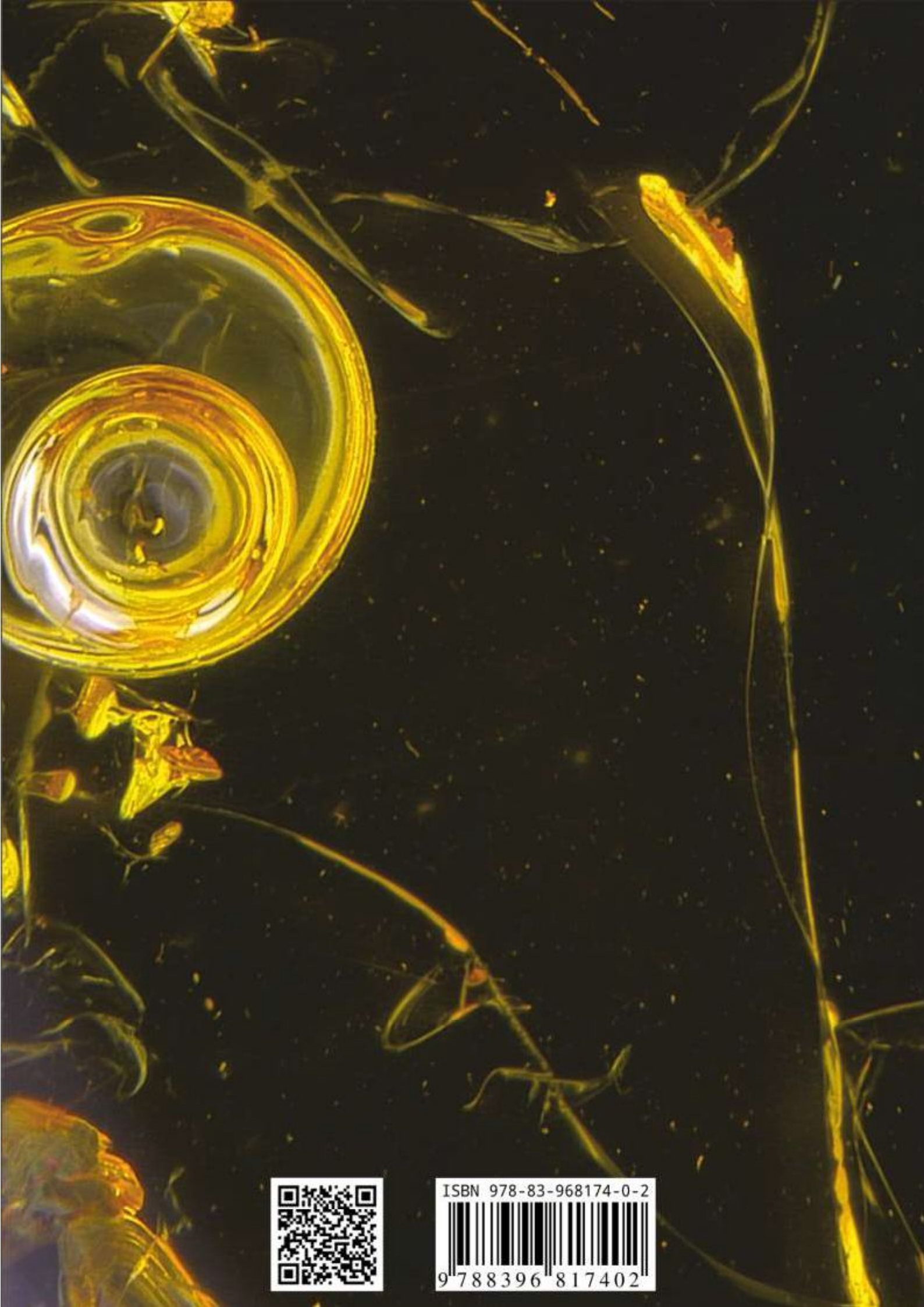


Fig. 1. Estimates of phylogenetic relationships among the tribes of corbiculate bees (After Engel M.S., Rasmussen C. 2020: Corbiculate bees, in Starr C. (Ed.) Encyclopedia of social insects. doi:10.1007/978-3-319-90306-4_30-1

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