

# AMBERIF 2018

International Fair of Amber,  
Jewellery and Gemstones

## INTERNATIONAL SYMPOSIUM AMBER. SCIENCE AND ART



## Abstracts

GDAŃSK, POLAND

22-23 MARCH 2018

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Jewellery and Gemstones

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### Abstracts

Editors: Ewa Wagner-Wysiecka · Jacek Szwedo · Elżbieta Sontag  
Anna Sobecka · Janusz Czebreszuk · Mateusz Cwaliński

This International Symposium was organised  
to celebrate the 25<sup>th</sup> Anniversary  
of the AMBERIF International Fair of Amber,  
Jewellery and Gemstones  
and the 20<sup>th</sup> Anniversary of the Museum of Amber  
Inclusions at the University of Gdańsk

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## Foreword

For 25 years, AMBERIF has been gathering people of common passion: Baltic amber (=succinite). Since its first edition, AMBERIF has been accompanied by scientific seminars, which were initiated by Prof. Barbara Kosmowska-Ceranowicz and Wiesław Gierłowski. In its silver jubilee year 2018, the seminar is an International Symposium, organized under the supervision of AMBERIF Project Director Ewa Rachoń.

Science and art have been coming together from times immemorial. They are like a good marriage, supporting and complementing each other, providing creativity and inspiration, opening new perspectives and opportunities every day. Baltic amber, but also other fossil resins of the world, is a perfect example of a link between science and art. It is because succinite in a magical way simply attracts—not only those who just love the secret beauty of amber, but also scientists and artists.

During the two days of the Symposium (22-23 March 2018), we would like to present, in light of the latest scientific reports, the dynamic development and progress of the research areas related to amber in the field of natural sciences, exact sciences and humanities. Four thematic sessions, which will be chaired by members of the Scientific Committee of the Symposium, with the honorary Chair of the Symposium, Professor Barbara Kosmowska-Ceranowicz (Museum of the Earth in Warsaw, Polish Academy of Sciences), include lectures and poster sessions. Our invitation as keynote lecturers was accepted by: Prof. Faya Causey (Getty Research Institute, USA), Prof. Sarjit Kaur (Laboratory of Amber Research, Faculty of Chemistry, M. Vassar College, USA), Prof. Joseph B. Lambert (Faculty of Chemistry, University of Trinity, USA), Prof. Vincent Perrichot (Faculty of Earth Sciences, University of Rennes 1, France).

Session “*Life traces in amber*” chaired by Prof. Jacek Szewo and Dr Elżbieta Sontag (Faculty of Biology, Laboratory of Evolutionary Entomology and Museum of Amber Inclusions, University of Gdańsk) is dedicated to the traces of ancient organisms and their activities, preserved in fossil resins. Its main topic is the inclusion of insects and other arthropods, plants, fungi and other organisms. This session is also a celebration of the 20<sup>th</sup> Anniversary of the Museum of Amber Inclusions at the University of Gdańsk.

Local and supra-regional traditions in the manufacture of amber objects among European societies of the Bronze and Iron Age is the leading topic of the session “*Stylistics and processing technology of amber products in 3<sup>rd</sup>-1<sup>st</sup> millennium BC: local and interregional perspective*” conducted by Prof. Janusz Czebreszuk and Mateusz Cwaliński (Institute of Archaeology, Adam Mickiewicz University in Poznań). The twelve oral communications presented in this session will be summarized in a special final discussion.

The latest achievements in research on amber properties with the use of modern research techniques and applications of these achievements form the main topic of the session “*Highlights of amber properties investigations and current aspects of amber mining.*” This part of the Symposium is also dedicated to very important current problems—also environmental ones—related to the geology and extraction of amber. This session is under the supervision of Dr Ewa Wagner-Wysiecka and Dr Natalia Łukasik (Faculty of Chemistry, Gdańsk University of Technology).

The amazing and captivating world of myths, toposes and their representations in amber artefacts is the subject of the session on “*Myths, collections and conservation of amber,*” led by Dr Anna Sobiecka (Faculty of History, University of Gdańsk).

Instead of a summary—

***“Man is unique not because he does science, and he is unique not because he does art, but because science and art equally are expressions of his marvellous plasticity of mind”*** (Jacob Bronowski)

***Ewa Wagner-Wysiecka***

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## The planthopper family Mimarachnidae (Hemiptera: Fulgoromorpha) in Burmese amber

TIAN JIANG<sup>1</sup>, BO WANG<sup>2</sup>, JACEK SZWEDO<sup>3</sup>

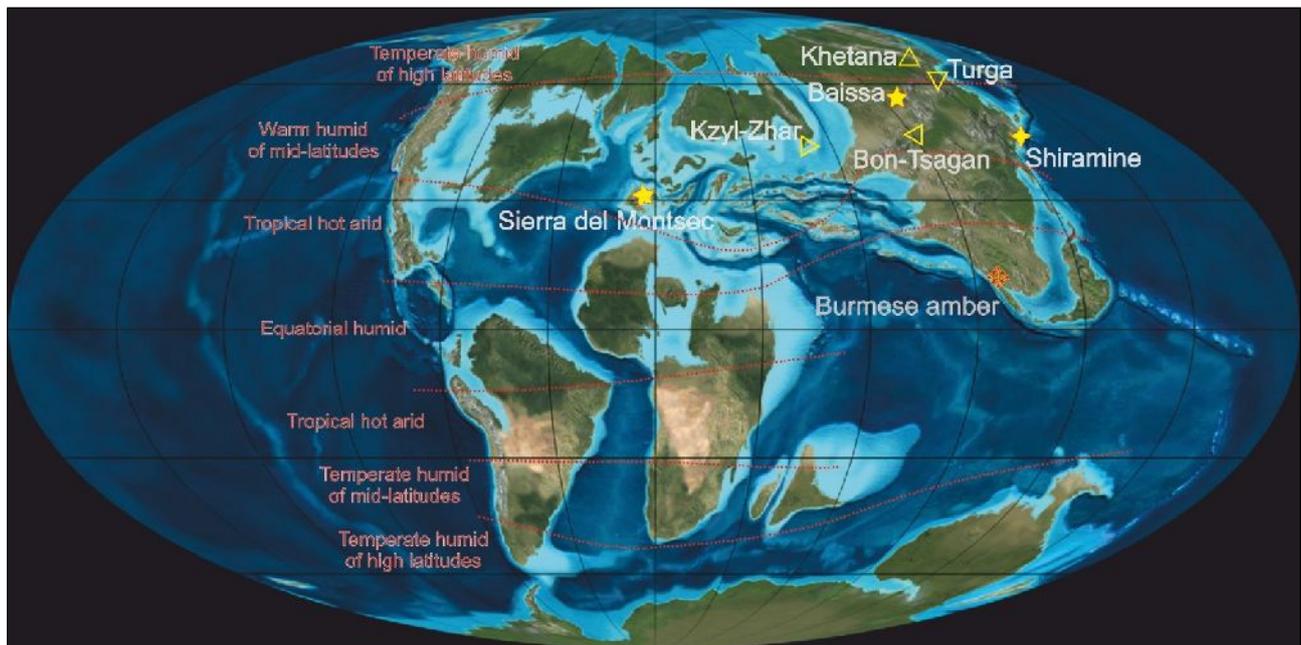
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The Hemiptera is one of the “Big Five” insect orders presenting the highest taxonomic diversity and morpho-ecological disparity. Planthoppers (Fulgoromorpha) is one of the hemipteran suborders displaying enormous diversity, with 30 extant and extinct families currently recognized and with fossil record reaching the Permian (Szwedo 2018). The extinct family Mimarachnidae Shcherbakov, 2007 is characterized by its simplified venation, setigerous metatibial pecten, and the spider-like dark silhouette and black eyespots of tegmina (Shcherbakov 2007). For the moment Mimarachnidae were known exclusively from the compression/impression fossils in sedimentary deposits of Buryatia (Russia), Japan and Spain (some not formally described taxa come from Mongolia and probably also from Brazil), which restrict the family distribution to the middle to high latitudes probably with the seasonal alteration (Szwedo and Ansoerge 2015). Recently, Shcherbakov (2017) reported the first representative of this group from Burmese amber.

Here, we report more representatives of the family preserved as inclusions in the mid-Cretaceous Burmese amber, the major fossiliferous deposit of Cretaceous amber in southeastern Asia (Figure 1). These new fossils represent the records from a tropical palaeoequatorial region, indicating that this family can also live in the tropical forest. Surprisingly, the taxonomic and morphological disparity of these fossils exceed far beyond the known richness of fossils already known. Several eco-morphological traits present among modern planthoppers are to be observed also among representatives of Mimarachnidae from Burmese amber. Also taxonomic diversity of these fossils preserved as inclusions allow us to erect a number of new taxa of specific, generic and higher levels (Jiang et al. in press). Mimarachnidae seems to be an endemic family for the Cretaceous period, but their disparity is comparable to modern planthoppers leading to the questions of tempo and mode of eco-evolutionary adaptations on one hand, and reasons for rapid origination and extinction of this group on the other. Also relationships of the Mimarachnidae within the Fulgoromorpha clade are not fully elaborated, and recent discoveries contest the already proposed relationships of Mimarachnidae with Cixiidae-like lineage of the Fulgoromorpha. The recent discoveries of particular Mimarachnidae with peculiar venation, hardly comparable with modern planthoppers put a set of new questions and possibility of new explanations of the Fulgoromorpha phylogeny and relationships. Inclusions in amber allow also to study in more details elements of genital block of both females and males of Mimarachnidae. It seems that these structures only hardly match the model presented by modern planthoppers.



**Fig. 1.** Known Cretaceous fossil sites harboring Mimarachnidae. Paleogeographic map for 90Ma (courtesy of Professor Ron Blakey, Colorado Plateau Geosystems). Climatic belts after Hay and Flegel (2012).

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