ESRF	**Experiment title:** Paleontological appoach of the phylogeny of the basal clades of Staphylinoidea (Insecta Coleoptera)	**Experiment number**: EC530
Beamline: BM5	**Date of experiment**: from: 14/06/2013 to: 17/06/2013	**Date of report**: 27/02/2020
Shifts: 12	**Local contact(s)**: Paul Tafforeau	*Received at ESRF:*

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Report:

30 amber fossils have been scanned (most from Cretaceous amber, some from Eocene amber).

Most of samples have given scans of high quality allowing virtual dissections of internal structures including in Cretaceous samples which are in more precarious reservation conditions.

Three paper have been published, the titles and abstracts follows:

1 – M. Perreau & E. E. Perkovsky, 2015. Further description of *Catops nathani* Perkovsky, 2001 from Late Eocene Baltic amber (Coleoptera: Leiodidae: Cholevinae: Cholevini) using phase contrast synchrotron X-ray microtomography. *Annales de la Soci\'et\'e entomologique de France N. S.*, 50 [2014] (3-4): 414-417. doi: 10.1080/00379271.2014.984957

Abstract: *Catops nathani* Perkovsky, 2001 from Late Eocene Baltic amber is redescribed using propagation phase contrast synchrotron radiation microtomography. Further description of the external morphology is given and genitalia are illustrated. This redescripiton allows to place *C. nathani* in the "*alpinus*" species group of the genus *Catops*.

2 - A. Zanetti, M. Perreau & A. Solodovnikov, 2016. Two new fossil species of Omaliinae from Baltic amber (Coleoptera: Staphylinidae), and their significance for understanding the Eocene-Oligocene climate. *Arthropod systematics and phylogeny*, 74 (1): 53-64.

Abstract: Two fossil species, *Paraphloeostiba electrica* sp.n. and *Phyllodrepa antiqua* sp.n. (Staphylinidae, Omaliinae), are described from Baltic amber. Their external and relevant internal structures are illustrated

using propagation phase contrast synchrotron microtomography. The palaeobiogeogaphy of the two genera, the thermophilous *Paraphloeostiba*, the temperate *Phyllodrepa,* as well as palaeoenvironment of the amber forest are discussed in light of the new findings.

3 – M. Perreau, 2019. *Cretaciella sorianoae* n. gen. n. sp, (Coleoptera, Leiodidae, Cholevinae, Oritocatopini) anophthalmic species from Albian amber of the Escucha formation (Alava, Spain). *Geosciences*, 9 (12): 521. doi: 10.3390/geosciences9120521

Abstract: *Cretaciella sorianoae* n. gen. n. sp, (Coleoptera, Leiodidae, Cholevinae, Oritocatopini) from Albian amber of the Nograro formation (Alava, Spain) is described and illustrated. This is the first species of Leiodidae from Alava amber and the first Cholevinae from Cretaceous amber. External and internal morphology are investigated by propagation phase contrast X-ray microtomography. Based on both external morphology and genital structures, *Cretaciella* is tentatively placed in the tribe Oritocatopini, the extant species of which occur in subsaharian Africa. This specimen has no visible eyes nor flight wings, which suggests a subterranean adaptation. The biogeography of the tribe is succinctly discussed.