VII Encontro Nacional Biologia Evolutiva

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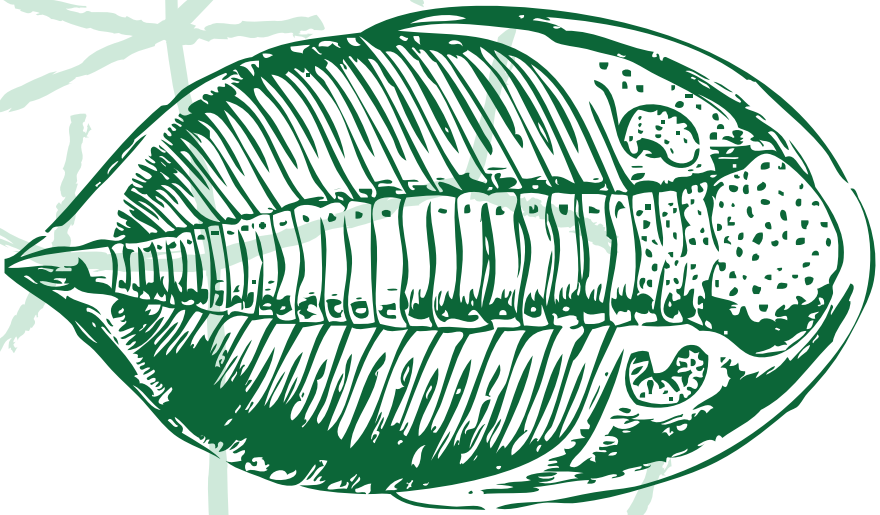

PROGRAMA / RESUMO DE COMUNICAÇÕES

Organização:

MUSEU DA CIÊNCIA
UNIVERSIDADE DE COIMBRA

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MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR

CIBIO

[28] Tomographic techniques for the study of exceptionally preserved dinosaur and crocodile fossils from the mesozoic of Portugal

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Portugal is ranked within the ten countries with more dinosaur taxa and the Lourinhã Formation is known by the Late Jurassic findings of dinosaurs and other fossils. Often, studies of the external morphological characteristics of the fossils are not sufficient and, observations of internal structures, using non-destructive techniques, are required. The fossils here presented belong to the Museum da Lourinhã (Portugal) and comprise a lower jaw of a basal crocodilian (possibly a Tomistomidae), eggshells and several vertebrae from the exceptionally well preserved in ovo remains of Late Jurassic theropod dinosaur *Lourinhanosaurus*. Neutron Tomography (NT) experiments with this material has been carried out at the Geesthacht Neutron Facility in Germany. Additionally, eggshell fragments and several vertebrae have been studied by Synchrotron-Radiation based Micro-Computed Tomography (SRμCT) at the HARWI II and BW2 beamlines, respectively. These beamlines are operated by the Helmholtz-Zentrum Geesthacht at the storage ring DORIS III at the Deutsches Elektronen–Synchrotron DESY in Hamburg, Germany. In both cases (NT and SRμCT) complete 3D recordings have been obtained using a non-destructive procedure. The high-quality tomographic datasets can be effectively studied through interactive digital visualization. Hence, these visualization methods provide precious information about the 3D internal micro morphology of fossils, like the network of the eggshell pores, often invisible in more traditional techniques, and provide a direct window into the evolutionary history of organisms.