

Plamen Andreev

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About

Title of PhD: The early evolutionary history of sharks and shark-like fishes

Supervisors: [Ivan Sansom](/staff/profiles/gees/sansom-ivan.aspx) (University of Birmingham), Mike Coates (University of Chicago)

My current research aims to investigate the hard tissue histology of many early chondrichthyans and to integrate the distribution of tissue types, scale structure and morphology into phylogenetic datasets in order to establish:

1. The validity of many traditionally held chondrichthyan histological characters
2. The positioning of Siluro-Ordovician microremains within the phylogeny of chondrichthyans
3. The plesiomorphic condition for the structure of chondrichthyan scales

Specimens for study come from extensive collections of microremains from the Siluro-Ordovician; preliminary work on which indicates they are histologically intact and suitable for examination via traditional thin section techniques (using microscopes equipped with Nomarski interference optics) and acid etching (for SEM study) to determine the hard tissue composition of the scales. 3-D rendering, using data gathered during micro CT scanning, will provide detailed imaging of the overall scale morphology and internal 'plumbing' of the pulp cavity and associated vascularisation, and will enable the development of detailed growth models for individual scale units (odontocomplexes). Comparative material from more derived members of the chondrichthyan clade (Recent as well as fossil specimens) will also be included in the study.

Qualifications

MSc Palaeontology and Stratigraphy – Sofia University – 2010

Biography

Completed a Biology and Geology degree at the University of Sofia in 2008 before starting a Palaeontology and Biostratigraphy Masters at the same institution (project thesis "Study of enameloid-like tissues in certain fossil elasmobranchs and actinopterygians").

Research

Research interests

Phylogeny and evolution of early jawed vertebrates with emphasis on the development and histology of their mineralised skeleton.

Publications

Andreev, P. 2010. Enameloid microstructure of the serrated cutting edges in certain fossil carcharhiniform and lamniform sharks. *Microscopy Research and Technique*, 73:704–713.

Andreev, P. 2011. Convergence in dental histology between the Late Triassic semionotiform *Sargodon tomicus* (Neopterygii) and a Late Cretaceous (Turonian) pycnodontid (Neopterygii: Pycnodontiformes) species. *Microscopy Research and Technique*, 74:464–479.

Andreev, P. and Cuny, G. 2012. New Triassic stem selachimorphs (Chondrichthyes, Elasmobranchii) and their bearing on the evolution of dental enameloid in Neoselachii. *Journal of Vertebrate Paleontology*, 32:2, 255-266.