



Mercoledì 5 Dicembre 2018

Ore 16.00 - Aula Ruffini

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Seeking a better life in plankton? Evolution and paleoenvironmental implications of the thycopelagic habit in Foraminifera

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Foraminifera is a well-known microfossil and extant group of protists adapted to live in marginal environment and on the seafloor, as epi- or endobenthos, and in the epi- to mesopelagic environment as plankton. Its use in biostratigraphy and, as a consequence, its taxonomy were promoted by the hydrocarbon exploration in the early part of the XX century. Since then, the abundance and global distribution of foraminifera made them one of the best paleoenvironmental and paleoceanographic proxies used, not only in geology, but also in environmental science. Such applications required an extensive improvement of the knowledge of the biology of foraminifers, including their evolution.

Foraminifers first exploited the benthic realm in the late Neoproterozoic. Traditionally, planktic foraminifera were considered a monophyletic group evolving from benthonic during the Late Triassic/Early Jurassic. The recent discovery of the thycopelagic lifestyle (living and growing both as benthos and plankton) of *Bolivina*/*Streptochilus* allows to shed light on the possible polyphyletic evolution of planktic foraminifera from different benthic ancestors during the multiple environmental crisis that punctuated the geological history (K/P boundary, OAEs, etc.). The thycopelagic lifestyle is a long term important evolutionary mechanism, but has shorter-term important implications in paleoenvironmental and paleogeographic reconstructions. In fact, *Bolivina*/*Streptochilus* is commonly found in brackish basins when a short or ephemeral marine connection or condition is established, as repetitively happened in the Mediterranean-Paratethys area during the Miocene.

