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**Rafael Núñez\*** (rnunez@ucsd.edu). *Philosophy of mathematics in the 21st century: why does it need the sciences of the mind?* Preliminary report.

Mathematics is about abstract concepts, precise idealizations, relations, calculations, and notations, all of which are made possible by the amazing (albeit limited) workings of the human mind and the biological apparatus that supports it. Over the past 50 years the scientific study of mental phenomena has made enormous progress in understanding their psychological, linguistic, and neurological underpinnings. Traditional approaches in Philosophy of Mathematics such as Platonism, Formalism, Logicism, and Intuitionism - developed many decades, if not centuries prior to these developments - could not benefit from these findings. I argue that today, in the 21st century, philosophical investigation - e.g. What is mathematics? What is it for? How does it work? - should be informed by, and be compatible with findings in the sciences of the mind. I'll illustrate my arguments with research addressing issues in hyperset theory, infinitesimal calculus, and mathematical induction. (Received September 14, 2017)