

## Rutile R632 – a new natural reference material for in-situ U–Pb and Zr analyses

E. AXELSSON<sup>1,2\*</sup>, J. BERNDT, J. PAPE<sup>1</sup>, F. CORFU<sup>4</sup>, K. MEZGER<sup>1,\*\*</sup>, M. M. RAITH<sup>5</sup>

<sup>1</sup>Institute of Geological Sciences, University of Bern, Baltzerstrasse 1+3, 3012 Bern, Switzerland

<sup>2</sup>Department of Geological Sciences, Stockholm University, Svante Arrheniusväg 8, 106 91 Stockholm Sweden

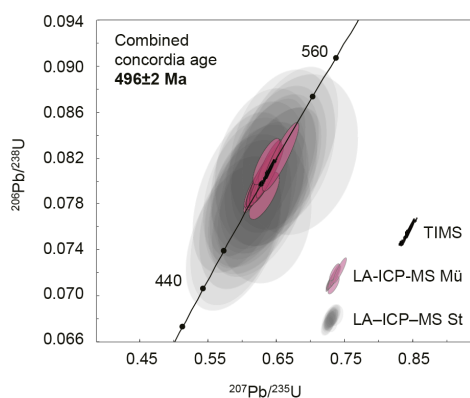
<sup>3</sup>Institut für Mineralogie, University of Münster, Corrensstrasse 24, 48149 Münster, Germany

<sup>4</sup>Department of Geosciences, University of Oslo, Norway

<sup>5</sup>Steinmann Institut, University of Bonn, Poppelsdorfer Schloss, 53115 Bonn, Germany

\*emelie.axelsson@geo.su.se, \*\*klaus.mezger@geo.unibe.ch

A new natural rutile reference material is presented, that is suitable as a reference for U-Pb dating by in-situ methods and Zr-in-rutile (ZiR) thermometry by electron microprobe analyses. The rutile sample R632 from Sakany, Madagascar, has a high U concentration (ca. 350 ppm) and individual crystals yield uniform, concordant and highly precise U–Pb ages despite their young age. A U-Pb concordia age of  $496\pm 2$  Ma is obtained by combining the sector field/quadrupole LA-ICP-MS and ID-TIMS analyses obtained in three different laboratories (Fig. 1). Rutile R632 contains high and homogeneous Zr concentrations within and between grains, making it a potential complementary reference material for ZiR. This new material significantly expands the range of available rutile reference materials relevant for age- and temperature determinations.



**Fig. 1:** Concordia diagram showing U-Pb data from LA-ICPMS quadrupole in gray, LA-ICPMS magnetic sector field in red, and ID-TIMS in black. The size of the ellipses is  $2\sigma$ .