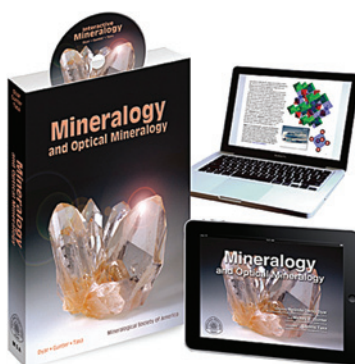


MINERALOGY AND OPTICAL MINERALOGY – iBOOK EDITION*

Mineralogy and Optical Mineralogy, by D. Dyar, M. Gunter, and T. Tasa, covers in detail all aspects of modern mineralogy. However, the book takes a new and innovative approach to the subject. The idea behind the book is that, although being fundamental to the geosciences, mineralogy is usually regarded by students (including the authors, as they frankly admit) as being difficult due to a wrong didactic approach. The challenge of attracting the interest and natural curiosity of students toward mineralogy prompted the authors to develop a new teaching method, one that links scientific principles that are new for the reader (e.g. crystallography, which requires thinking in three dimensions) to more familiar contexts. To achieve this, the authors structured their text according to the modern teaching method known as “spiral learning.” Here, the important arguments are repeated and developed to ever higher levels, from basic to intermediate to advanced. The rationale behind this method is that the student is stimulated to construct new concepts based upon previous knowledge, thereby continually reinforcing what (s)he has previously learned. This is extremely useful: students get to develop and fix ideas through an active process and along a sequence of increasing difficulty. It is also useful for teachers, who can address different levels of difficulty depending on the audience they are dealing with.

This iBook, (not only an e-book!) represents, to the best of my knowledge, the first academic “text” of its kind specifically designed to take full advantage of Apple iOS systems on iPad tablets. It is the natural



development of the previous version (also available as a downloadable pdf from the Mineralogical Society of America site: www.minpubs.org), and goes much further in the teaching philosophy of the authors because it uses communication media that are familiar to the newer generation of students. Each chapter can be obtained as a separate app from iTunes Store, and this represents a clear advantage for the buyer. This iBook maintains the rigorous text and arguments of the paper version but makes extensive use of graphic animation, movies, 3-D rotatable crystal structures generated with CrystalMaker®, interactive diagrams, and review questions, which greatly facilitate learning (for students) and teaching (for professors). The new approach is especially helpful in explaining symmetry concepts, X-ray diffraction, and optical mineralogy; the reader has the possibility of seeing, for example, what really happens when observing objects using a polarizing microscope. The systematic mineralogy section has been intentionally moved outside the book and placed in a companion app (Mineral Database, downloadable from iTunes Store); it is extremely user-friendly and attractive. This companion app not only provides crystal-chemical and physical property data but also allows one to visualize and rotate in 3-D the crystal morphology and structure.

Giancarlo Della Ventura, Università Roma Tre

* Dyar MD, Gunter ME, Tasa T (eds) *Mineralogy and Optical Mineralogy*. Mineralogical Society of America, ISBN 978-0939950812, 705 pages, Print +DVD US\$90.00, individual e-book chapters US\$3.99



www.cameca.com

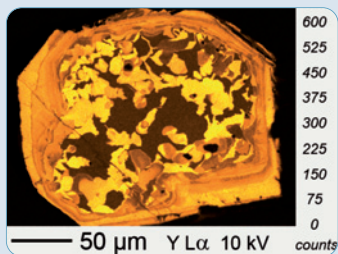
Elemental & Isotopic Microanalysis in Geosciences



EPMA

SXFive / SXFiveFE

High precision quantitative trace element analysis



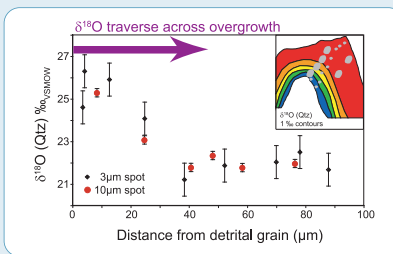
Distribution of Y in a grain from granite of Couraols, France. Dated at 34.3±2.0 m.y by measuring Th, U, Pb and Y. Sample courtesy of Dr G. Wille, BRGM, France.



SIMS

IMS 1280-HR

Ultra high sensitivity SIMS for isotopic measurements with tenth-permil precision



In-situ oxygen isotopes analyses in Quartz overgrowth (50 μm width) in the tenth-permil precision range at 10 μm and 3 μm lateral resolution. Courtesy of A.D. Pollington et al., *Geology* (2011).

NanoSIMS 50L

High sensitivity sub-micron scale isotopic and trace element analysis

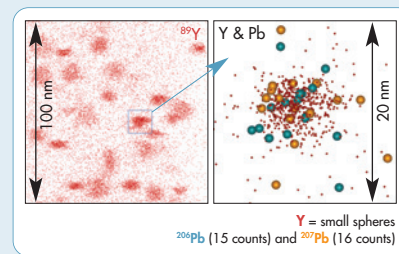
IMS 7f-GEO

Small geometry monocollector SIMS for geoscience laboratories

APT

LEAP® 5000

3D Atom Probe for imaging and analysis with atomic resolution



One of the hundreds of clusters analyzed from a zircon crystal from the Jack Hills of Western Australia showing the 3D distribution of ⁸⁹Y and radiogenic ²⁰⁶Pb and ²⁰⁷Pb atoms at the nanometer scale. Analysis of the data confirm the 4.4 Ga age and a heating event that occurred ~1 Ga after its formation.

Courtesy of Valley, J. et al. Hadean age for a post-magma-ocean zircon confirmed by atom probe tomography. *Nature Geoscience* (2014).

