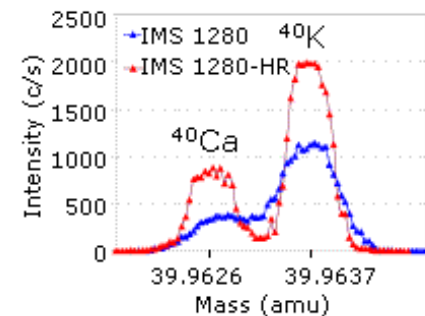


Welcome to the 4th issue of the CAMECA electronic newsletter. We are pleased to inform you of recent product developments and applications, collaborative programs and upcoming events.

We hope you will find this newsletter useful, **and we also invite you to our fully revamped web site:** www.cameca.com is filled with new application examples, updated instrument descriptions and new technical notes.

News from our SIMS product line: Magnetic & Quad SIMS, NanoSIMS...

CAMECA INTRODUCES THE IMS 1280-HR



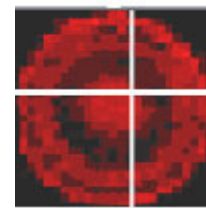
The new **IMS 1280-HR** model will combine the well-proven features of the standard IMS 1280 with new developments oriented towards specific applications in Geosciences requiring **very high mass resolution** capabilities both in mono and multicollection modes: redesigned coupling and magnet sections, enhanced magnetic field stability, etc... Preliminary data on the left show the improved transmission obtained in monocollection mode and at very high mass resolution: **MRP (10%) > 32,000**.

A prototype has been installed at **CRPG Nancy**,

France, joining the IMS 1270 instrument in operation in this prestigious earth & planetary science research center. A collaboration with CRPG will allow us to further develop this new IMS 1280-HR model.

First data will be presented at the next [Goldschmidt conference](#), in Knoxville, TN, USA, June 13-18.

IMS 1280: CONFIRMED LEADERSHIP IN NUCLEAR FORENSICS



The recent purchase of an Ultra High Sensitivity Ion Microprobe IMS 1280 by the **Institute for Transuranium Elements (ITU Karlsruhe, Germany)**

confirms CAMECA's undisputed leadership in the field of **nuclear particle analysis**. More information on Nuclear Particle Analysis with the IMS 1280 at this [link](#).

CHECKERBOARD OPTION for IMS 7f & IMS Wf/SCU

Well known from the CAMECA Quadrupole SIMS users, **Checkerboard Gating** functionalities are now also available on magnetic sector **IMS Wf/SCU** and **IMS 7f** under PC Automation. The Checkerboard option greatly improves the quality of your depth profiling data and the throughput of your instrument. The new **Checkerboard technical note** will be sent to you [on request](#).

PC AUTOMATION UPGRADE for the IMS 6f

Available for all IMS 6f instruments currently equipped with a SUN workstation, the **IMS 6f PC-Automation Upgrade** provides interactive instrument control and easy tuning, unattended operation and powerful data and image processing (includes both [WinCurve](#) and [WinImage](#) software packages). Send us an [email](#) to request the new PC-Automation Upgrade **flyer!** You may also contact your local subsidiary or agent for an upgrade offer.

NanoSIMS 50L: A HANDFUL OF NEW CUSTOMERS

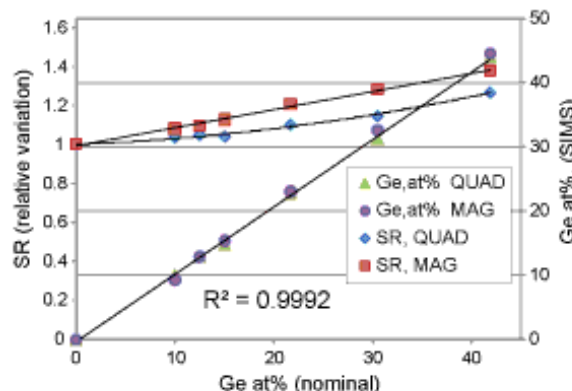
We've had the great pleasure to welcome 4 prestigious institutions as new customers of our NanoSIMS 50L model:

SIMS Applications to SEMICONDUCTOR R&D - SiGe structures: An optimized protocol for accurate depth profile quantification with CAMECA Mag & Quad SIMS

High performance CMOS logic designs have utilized so-called "Strained-Si" techniques to enhance device performance. The chemical composition and layer thickness can be accurately measured by SIMS provided that analytical protocol and data quantification are well addressed. Sputter rate and ion yield are known to vary with the Ge concentration. However **optimal sputtering conditions** can minimize these effects and therefore lead to straightforward data quantification using the CAMECA WinCurve data processing software.

Ion beam	O2+
Impact energy	1keV
Incidence angle	40° (Mag) 0° (Quad)
O2 backfilling	40°: Yes (5e-6 Torr) 0°: No (1e-9 Torr)
SR in Si	~2 nm/min

The CAMECA SIMS Application Laboratory has analyzed a series of six **Si_{1-x}Ge_x structures**, with a nominal Ge at% value varying from 5 to 40%. The detailed sputtering conditions are reported in the **table on the left**.



One of the six samples has been used as a reference. The relative variation of Sputter rate as a function of Ge at% shown in the same graph (left hand scale) must be taken into account for SiGe layers quantification in order to achieve ultimate accuracy. The perfect data correlation for Ge at%(SIMS) vs. Ge at%(nominal) demonstrates that the optimization of the analytical conditions together with a suitable data quantification protocol can give access to accurate quantitative SIMS depth profiles with a single reference sample.

NanoSIMS 50 / 50L: LATEST INSTRUMENTAL DEVELOPMENTS

Among the latest improvements on the **NanoSIMS 50/50L** instruments:

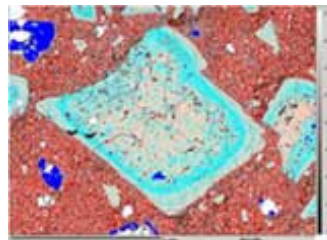
- a **cold stage**, compatible with the existing chamber, is currently being tested: primarily developed for the analysis of volatile sample, it can also greatly facilitate the analysis of frozen hydrated biological samples by avoiding chemical preparation.
- **new ultra low energy pre-implantation mode:** bombarding with Cs or O ions at a few tens eV will enhance the sensitivity of nm-thin surfacic layers that are otherwise sputtered before optimum ionization is achieved.

For more information on these new developments, do not hesitate to [contact](#) your local CAMECA subsidiary or agent.

News from our EPMA instruments: SX 100 and SX 100-R

PEAKSIGHT: NEW RELEASE 4.2

Version 4.2 of our EPMA Automation & Analysis Software **PeakSight** was just released! Among the new features...

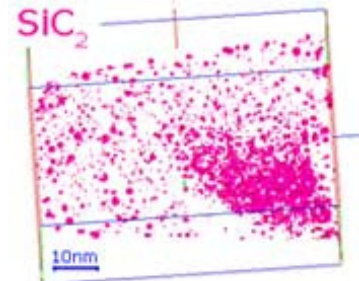


- **Multiple result display:** Up to 8 types of numerical results can be displayed simultaneously in column format and transferred directly into Excel format
 - **Background offsets** for Quantitative analysis may be interactively selected within a WDS spectrum
 - **Image Mixer:** BSE image and X ray maps can be displayed simultaneously and mixed as on the left side image.
 - **Markers** of the satellite X ray lines and absorption edges are available when X ray spectrum is processed.
- For more information on **upgrades**, please contact your local subsidiary or agent.

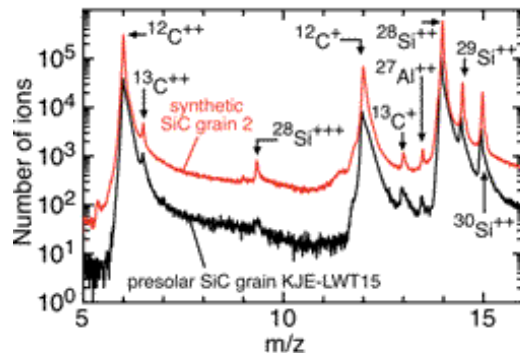
LA-WATAP: Laser-Assisted 3D Atom Probe

3D ATOM PROBE: NEW APPLICATION IN ASTROPHYSICS

Preliminary results acquired with the CAMECA LA-WATAP 3D Atom Probe on **presolar SiC grains** and **synthetic SiC grains** were presented by Dr. Philipp R. Heck (University of Chicago) at the 41th Lunar & Planetary Science Conference.



Above: sub-grain enrichment in SiC₂ on a 50x50x72nm³ sample.

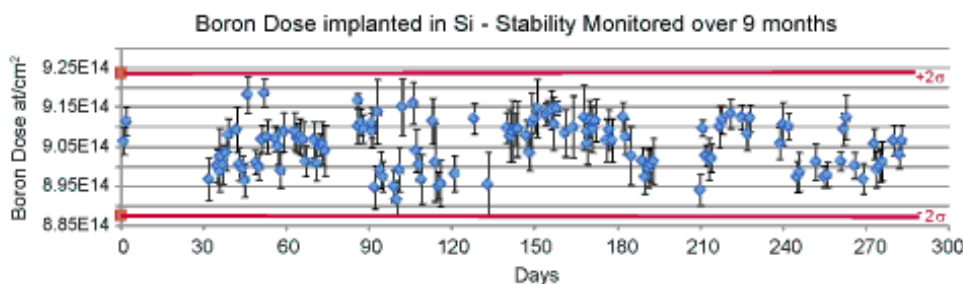


3D Atom Probe provides outstanding capabilities to characterize both elemental and isotopic composition of nm-scale volumes of **electrically insulating materials**.

Shallow Probe LEXFAB-300 Semiconductor Metrology Tool

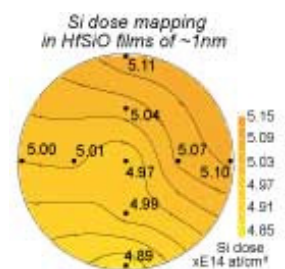
THE REFERENCE TOOL FOR ULTRA SHALLOW DOPANT MONITORING

Thanks to its **remarkable stability**, the CAMECA Shallow Probe **LEXFAB-300** is the ideal tool for **continuous implant monitoring**. In the example below, measurements of **Boron** doses in Si were performed **over 9 months** on the same wafer, showing an average repeatability of 0.6%, with Boron dose variations by only 0.7%.



HIGH K, N METROLOGY & EPITAXIAL LAYERS

The CAMECA LEXES research team has started a new collaboration with the "Film Metrology" group of **ISMI / SEMATECH**, Albany, NY. Main focus is on **High K, various SiON, SiN and W.**



- > **ASU (Arizona State University), USA:** Under leadership from SIMS expert Pr. Peter Williams, the instrument will serve a wide range of applications in geology, materials as well as biology.
- > **IGGCAS Beijing** (Institute of Geoscience of the Chinese Academy of Science), under leadership from Pr Lin Yang-Ting, already IMS 1280 user.
- > **Stanford University, CA, USA:** run by SIMS expert Dr Chuck Hitzman, the NanoSIMS lab will conduct research in a broad range of applications (geology, materials, biology and medicine)
- > **TUM (Technical University of Munchen), Germany:** this is the first NanoSIMS purchased for **soil studies**.

RECENT EPMA ORDERS

- > We are pleased to welcome yet another SX 100 customer from India: **Pondicherry University** will use the instrument for research in earth sciences and physics.
- > More orders in the field of geology and mineralogy came from Geological Survey of India (Faridabad & Hyderabad sites), Panstwowy Instytut Geologiczny, Poland, University of California at Santa Barbara and University of Arizona, USA.

NEW CUSTOMERS, UPCOMING EVENTS...

-> The **CEA-LETI** in Grenoble, France recently placed an order for the **latest model in our LA-WATAP series**. World leading nanotechnology research center, CEA-LETI is already user of CAMECA magnetic sector SIMS instruments. CEA-LETI will use CAMECA's wide angle, high mass resolution 3D Atom Probe for the development of advanced semiconductor electronics and photovoltaic materials and structures.

-> CAMECA will be **Silver Sponsor of the next IFES 2010** meeting to be held in Sydney, Australia next July.

For more results, you may [request](#) the new **Application Note** "Ultra Shallow Dopant Metrology with the CAMECA Shallow Probe".

A recent study in collaboration with **IBS** (Ion Beam Services) on **B plasma doped low energy high dose implants** will be unveiled at the upcoming **IIT 2010** conference in Kyoto. The presentation will be available [on request](#).

Our LEXFAB-300 system has reached a new milestone: recent sales in Asia and in the US confirm LEXES as a leading technology for process control of **epitaxial SiGe:B layers** and ultra shallow implants at **32nm**.

CAMECA 2010 conference schedule: Mark your calendars!

Next on the agenda (1st semester):

Apr 12-14: [Experimental Mineralogy Petrology Geochemistry](#), Toulouse, France

Apr 25-28: [EMAS Regional Workshop](#), Amsterdam, Netherlands

May 16-21: [SIMS Workshop](#), Norfolk, VA, USA

May 24-26: [ASM microbiology](#), San Diego, CA, USA, booth 204

June 6-11: [IIT 2010](#) (Ion Implantation Technology), Kyoto, Japan

June 13-18: [Goldschmidt Conference](#), Knoxville, TN, USA, booth 13

Make sure you don't miss us at 2010 conferences: check out our complete [event list](#) on the CAMECA web site!

Page 3/3

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