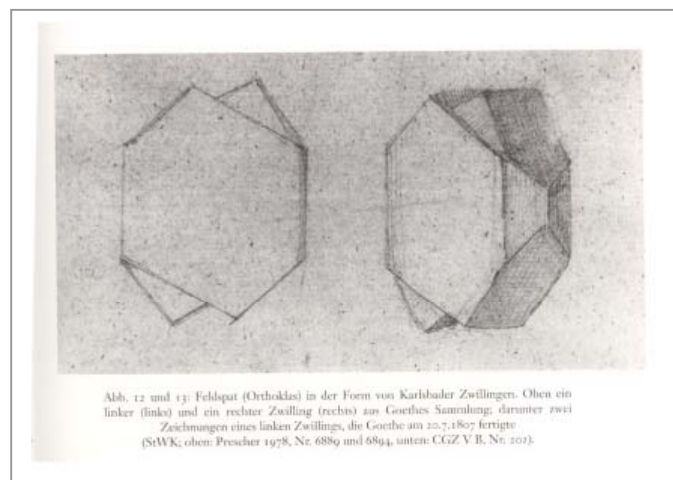


“H V” Plenary Lecture Hall – Monday 5 April 2004

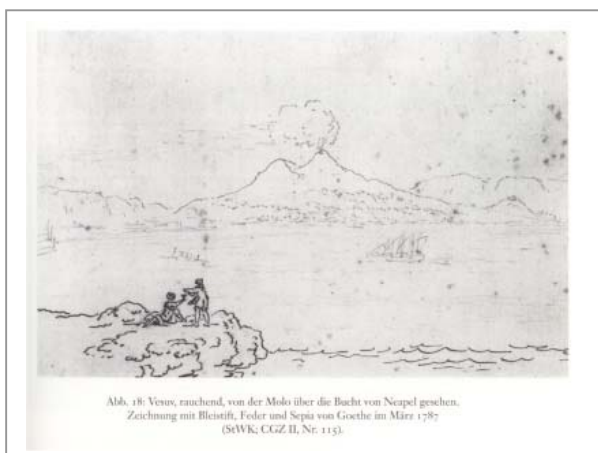
Scientific Programme

8.00 – 8.10 **Gerhard Brey: Welcome to EMPG X in Frankfurt**

8.10 – 8.40 **Bernie Wood** – invited : *Trace element partitioning and defects in perovskites*



Carlsbad twins – 1807



Vesuv Volcano – 1787



Granite Rocks - 1785

Drawings by one of the most famous ‘children’ of the city of Frankfurt,
Johann Wolfgang von Goethe

“H III” Lecture Hall – Monday 5 April 2004

S08 Physical properties of minerals, melts, fluids and rocks

Conveners: François Holtz, Jürgen Schreuer, Sharon Webb

08.45 – 09.00 **Harald Behrens, Youxue Zhang**

H₂O diffusion in depolymerized silicate melts

09.00 – 09.15 **Tatsu Kawamoto, Shukichi Ochiai, Hiroyuki Kagi**

Changes in the structure of water deduced from the pressure dependence of the Raman OH frequency

09.15 – 09.30 **Bettina Schmickler, David C. Rubie, Christian Liebske, Brent T. Poe**

Diffusion of Si, O, Mg, Ca, Ni and Co in peridotite liquid at high pressures

09.30 – 09.45 **Fabrice Gaillard**

Electrical conductivity of crystallizing hydrous magma

09.45 – 10.15 **COFFEE AT THE COFFEE CORNER IN THE EXHIBITION AREA**

Danish Pastry sponsored by Max Voggenteiter GmbH

10.15 – 10.30 **Milada Zimova, Sharon Webb**

Chlorine in Fe-bearing and Fe-free Aluminosilicate Melts

10.30 – 10.45 **Roman Botcharnikov, Harald Behrens, Francois Holtz**

Solubility of mixed H-O-Cl-S fluids in silicate melts: Effect of fluid composition

10.45 – 11.00 **Sharon Webb**

Viscosity and Configurational Entropy of Aluminosilicate Melts

11.00 – 11.15 **Donald Dingwell, Daniele Giordano, Philippe Courtial, Alex Nichols**

Viscosity of molten peridotite

11.15 – 11.30 **Marcel Potuzak, Daniele Giordano, Philippe Courtial, Donald Dingwell**

The Effect of Iron on the Rheological and Calorimetric Properties of Silicate Melts

11.30 – 11.45 **Kelly Russell, Daniele Giordano, Donald Dingwell, Kim Munro**

Modelling the Viscosity of Melts in the System Ab-An-Dp

11.45 – 12.00 **Didier Laporte, Catherine Mourtada-Bonnefoi, Ariel Provost, Jean-Michel Beny, Michel Pichavant**

The Effect of Ascent Rate on the Kinetics of Bubble Nucleation in a Rhyolitic Melt

12.00 – 13.10 **LUNCH**

S09 Reaction mechanisms and kinetics

Conveners: Ralf Milke, Cliff Shaw

08.45 – 09.00 **Daniel Harlov, Ralf Milke**

Reversal of sillimanite-corundum-quartz: competition between stable and metastable reactions

09.00 – 09.15 **Anna Likhacheva, Sergey Venjaminov, Evgeniy Paukshtis**

Thermal behaviour of ammonium in the framework aluminosilicates and its implications for the recycling of nitrogen

09.15 – 09.30 **Vladimir Reverdatto, Gennady Shvedenkov**

Experimental determination of the rates of metamorphic reactions

09.30 – 09.45 **Michele Zema, M. Chiara Domeneghetti, Jeffrey M. Schwartz, Vittorio Tazzoli**

Kinetic Study of Fe-Mg Exchange Reaction in P21/c Pigeonite by XRD

09.45 – 10.15 **COFFEE AT THE COFFEE CORNER IN THE EXHIBITION AREA**

Danish Pastry sponsored by Max Voggenreiter GmbH

10.15 – 10.30 **Eduard Persikov, Pavel Bukhtiyarov, Thomas Wenzel, Eduard Konnikov, Lukas Baumgartner**

Experimental Study of Basalt Melt and Carbonate Xenoliths Interaction at High Fluid Pressures

10.30 – 10.45 **Cliff Shaw**

Mechanisms of Quartz Dissolution in Melts in the CMAS system

10.45 – 11.00 **Hiroko Nagahara, Kazuhito Ozawa**

Surface reaction kinetics of forsterite in vacuum

11.00 – 11.15 **Kai Döffels, Sumit Chakraborty, Frank E. Brenker**

Enhancement of diffusion rates in olivine during evaporation - an example of reactive diffusion in a mineralogical system

11.15 – 11.30 **Almar de Ronde, Holger Stünitz, Jan Tullis**

Deformation Enhanced Reaction in Anorthite-Forsterite Aggregates

11.30 – 11.45 **Ralf Dohmen, Sumit Chakraborty**

Two Mechanisms of Si Diffusion in Diopside

11.45 – 12.00 **Ian Parsons, John Fitz Gerald, Amos Aikman**

EM Study of the Heating of Alkali Feldspar from the Shap Granite

12.00 – 13.10 **LUNCH**

“H V” Plenary Lecture Hall – Monday 5 April 2004

2002 EMU medallist lecture:

13.10 – 13.40 **John Brodholt** *Constraining chemical heterogeneity in the Earth's lower mantle*

“H III” Lecture Hall – Monday 5 April 2004

S08 Physical properties of minerals, melts, fluids and rocks (cont'd)

13.45 – 14.00 **Ilya Veksler, Alexander Dorfman, Peter Dulski, Maya Kamenetsky, Donald Dingwell**
Element Partitioning Between Fluoride and Silicate Melts and REE Tetrad Anomalies in Granites

14.00 – 14.15 **Alexey Kotelnikov, Andrey Kovalskii, Nataliya Suk, Vera Tikhomirova, Zoya Kotelnikova**
The Cl, S-bearing Sodalite Solid Solutions Due to the Problem of Fluid Regime of Lovozerskii Massif, Kola Peninsula

14.15 – 14.30 **Benoit Gibert, Frank R. Schilling, Kristin Gratz, Andréa Tommasi**
Heat transfer by radiation in San Carlos olivine single crystals and upper mantle rocks

14.30 – 14.45 **Alison Pawley, Mark Welch, Ron Smith**
The 10 Å phase: structural constraints from neutron powder diffraction

14.45 – 15.15 **COFFEE AT THE COFFEE CORNER IN THE EXHIBITION AREA**

15.15 – 15.30 **Mark Welch, Annette Kleppe, Andrew Jephcoat**
High-pressure behaviour of hydrogen-bonded sheet silicates

15.30 – 15.45 **Brent T. Poe, Claudia Romano, Nadia Kreidie, Catherine McCammon**
The effect of Fe-Mg substitution on the electrical conductivity of pyrope ($Mg_3Al_2Si_3O_{12}$) almandine ($Fe_3Al_2Si_3O_{12}$) garnets

15.45 – 16.00 **Peter Schmid-Beurmann, Fabrice Brunet, Volker Kahlenberg**
Phase Transformation of $MgAlPO_4O$, a product of lazulite decomposition

16.00 – 16.15 **Stefan Heinemann, Richard Wirth, Georg Dresen, Reinhard Uecker**
Synthetic Grain Boundaries in Minerals

16.15 – 17.00 **POSTER PREVIEW** **Chair: Gerhard Brey**

17.00 – 18.30 **REFRESHMENTS AND POSTER SESSION**

“H V” Plenary Lecture Hall – Monday 5 April 2004

2002 EMU medallist lecture:

13.10 – 13.40 **John Brodholt** *Constraining chemical heterogeneity in the Earth's lower mantle*

“H IV” Lecture Hall – Monday 5 April 2004

S10 Redox processes

Conveners: Dan Frost, Max Wilke

13.45 – 14.00 **Daniel Frost, Christian Liebske, Catherine McCammon, Falko Langenhorst, Reidar Tronnes, David Rubie**
Experimental evidence for the existence of a metallic iron-rich phase in the Earth's mantle

14.00 – 14.15 **Oleg Lukanin, Vyacheslav Rusakov, Anna Kotel'nikova, Arnold Kadik**
Pressure Effect on the Valence and Structural State of Iron in Basaltic Melts

14.15 – 14.30 **Ralf Kägi, Othmar Müntener, Peter Ulmer**
An Experimental Setup to Control fO_2 in High-Pressure H_2O -Undersaturated Natural Calc-Alkaline Magmas

14.30 – 14.45 **Max Wilke, Georg Partzsch, Francois Farges**
XAFS of Iron in Silicate Melt at High Temperature

14.45 – 15.15 **COFFEE AT THE COFFEE CORNER IN THE EXHIBITION AREA**

15.15 – 15.30 **Andrew Berry, Hugh O'Neill, Garry Foran**
The In Situ Determination of Redox States in Silicate Melts

15.30 – 15.45 **Véronique Magnien, Daniel Neuville, Laurent Cormier, Bjorn Mysen, Pascal Richet**
Kinetics of iron oxidation in silicate glasses : A XANES study

15.45 – 16.00 **Ursula Sauerzapf, Dominique Lattard, Mark Ghiorso**
New experiments in the system $Fe-Ti\pm Mg\pm Al-O$ - a contribution to a re-calibration of the Fe-Ti, two-oxide thermo- oxybarometer

16.00 – 16.15 **Agnes Kontny, Alan Woodland, Mario Koch**
Magnetic behaviour of spinelloid and spinel solid solutions in the system $Fe_2SiO_4 - Fe_3O_4$ and $(Fe,Mg)_2SiO_4 - Fe_3O_4$

16.15 – 17.00 **POSTER PREVIEW** Chair: Heidi Höfer

17.00 – 18.30 **REFRESHMENTS AND POSTER SESSION**

Poster session

Exhibition and poster area - Monday, 5 April 2004

Beer sponsored by Röntgenanalytik Messtechnik GmbH

S08 Physical properties of minerals, melts, fluids and rocks

So8Po1

Hiroshi Fukui, Osamu Ohtaka, Ken-ichi Funakoshi, Tomoo Katsura

Possibility of a single fluid phase of MgO-H₂O under high pressure

So8Po2

Christian Liebske, Bettina Schmickler, Hidenori Terasaki, Akio Suzuki, Ryota Ando, Brent T. Poe, Ken – ichi Funakoshi, David C. Rubie

Viscosity of Pyrolite Liquid at High Pressure

So8Po3

Daniel Neuville

Viscosity and structure of glasses and melts in the K₂O-MgO-SiO₂ system.

So8Po4

Francesco Vetere, Harald Behrens, François Holtz, Pascal Richet, Daniel Neuville

Viscosity of hydrous andesitic magmas

So8Po5

Annarita Mangiacapra, Daniele Giordano, Marcel Potuzak, Donald Bruce Dingwell, James Kelly Russel

The Effect of the Iron Oxidation State on Modeling non-Arrhenian Multicomponent Melt Viscosity

So8Po6

Daniele Giordano, Claudia Romano, Donald B. Dingwell, Brent T. Poe, Harald Behrens

The combined effects of water and fluorine on the viscosity of silicic magmas

So8Po7

Kai-Uwe Hess, Donald Bruce Dingwell, Marcel Potuzak, Philippe Courtial

The effect of halogens (F, Cl, Br, I) on the viscosity-temperature behaviour of a silicate melt

So8Po8

Piero Del Gaudio, Harald Behrens, Joachim Deubener, Ralf Müller

Viscous flow and H₂O speciation in hydrous float glass

So8Po9

Matthias Hahn, Harald Behrens, Jürgen Koepke, Karen Rickers, Gerald Falkenberg

Trace element diffusion and viscous flow in peralkaline silicate melts

So8P10

Akio Suzuki, David Rubie

Thermal diffusivity of silicate glasses at high pressure

So8P11

Kai Spickenborn, Dominik Schreen, Marcus Nowak

CO₂ diffusion in simplified natural melts

Monday Poster Session, 5 April 2004

So8P12

Agnieszka Wasik, Philippe Courtial, Donald Bruce Dingwell
Diffusion of Halogens in Silicate Melts

So8P13

Philippe Courtial, Donald Bruce Dingwell
Molar volume of lanthanide-bearing silicate melts

So8P14

Sidoine De Wispelaere, Delphine Cabaret, Francois Farges, Claire Levelut, Anne-Marie Flank
Influence of the glass surface on the speciation of Na, Al and Si.

So8P15

Francois Farges, Stephanie Rossano
Iron in silicate glasses: spectroscopy and simulations

So8P16

Tamara Salova, Alexander Simakin, Yaroslav Kucherinenko
Melting in the binary $RbAlSi_2O_6$ - SiO_2 : influence of the cation size on the melt structure

So8P17

Cristina De Campos, Donald Dingwell, Thomas Fehr
Decoupled convection cells from mixing experiments with alkaline melts from Campi Flegrei (Italy)

So8P18

Ulrich Kueppers, Oliver Spieler, Donald B. Dingwell
Quantitative Insights into the Fragmentation of Silicic Magmas

So8P19

Bettina Scheu, Oliver Spieler, Donald B. Dingwell
An Experimental Contribution to the Eruption Behaviour of Unzen Volcano.

So8P20

Welf A. Kreiner
On the Mass Distribution of Fractured Minerals

So8P21

Sergey Churakov, Max Schmidt, Michele Parrinello
Ab-initio molecular dynamic study of Phase-D at mantle conditions

So8P22

Emilie Janots, Fabrice Brunet, Bruno Goffé, Michael Burchard, Lado Cemic
Thermochemical characterization of synthetic La-bearing minerals : Implication for the stability of Iree-minerals in low-grade metapelites

So8P23

Andreas Kahle, Björn Winkler, Aurel Radulescu, Jürgen Schreuer
Small-angle neutron scattering study of volcanic rocks

Monday Poster Session, 5 April 2004

So8P24

Giacomo Diego Gatta, Tiziana Boffa Ballaran, Gianluca Lezzi

Elastic behaviour of Mg-bearing Ferri-Spodumene

So8P25

Peter Mirwald

The fine structure of the dehydration boundary of brucite (Mg(OH)₂) up to 2.5 GPa - indications of not smooth PVT behaviour of supercritical H₂O.

So8P26

Olga Vasiukova, Vyacheslav Fonarev

Experimental modeling of "superdense" fluid inclusions formation

So8P27

Nikos Doltsinis, Michael Burchard, Walter Maresch

Ab initio molecular dynamics simulations as a tool for interpreting vibrational spectra in aqueous fluids.

So8P28

Martin Ziemann, Christian Schmidt, Peter Mirwald

Raman spectroscopic study of the liquid-liquid transition in water

S 09 Reaction mechanisms and kinetics

SO9PO1

Ivan Belousov, Evgeniy Gramenitskiy, Tatyana Shchekina

Granite Melt - Dolerite Interactions

SO9PO2

Jan Schüssler, Harald Behrens, Roman Botcharnikov, Fleurice Parat

Diffusion of Cl and P in hydrous sulphur-bearing haplogranitic melts

SO9PO3

Arkady Glikin

Modeling of Crystal Replacement Products and Rapakivi Origin

SO9PO4

Tatiana Larikova, George Zraisky

An experimental study of the corona textures with different fluid phase: mineral compositions, zoning and diffusion coefficients.

SO9PO5

Paul Metz, Ralf Milke

A rock-sample experiment to investigate the mechanism and resulting textures of the reaction: 1 tremolite + 11 dolomite = 8 forsterite + 13 calcite + 9 CO₂ + 1 H₂O

SO9PO6

Ralf Milke, Rainer Abart, Holger Stünitz, Karsten Kunze, Michael Stipp

Mineral reactions under differential stress

Monday Poster Session, 5 April 2004

SO9PO7

Maho Yamada, Shogo Tachibana, Hiroko Nagahara, Kazuhito Ozawa
Anisotropy of Mg isotopic fractionation for evaporation of forsterite in vacuum

SO9PO8

Sabrina Nazzareni, Elisabetta Brizi, GianCarlo Capitani, PierFrancesco Zanazzi,
Augite-pigeonite exsolution: kinetics of the homogenisation

SO9PO9

Marco Pistorino, Serena Chiara Tarantino, Michele Zema, Maria Chiara Domeneghetti, Vittorio Tazzoli
Cation Ordering in Natural (Fe, Mn)Nb₂O₆ Columbites: an in situ XRD Study

S 10 Redox processes

S10PO1

Birgit Poeter, Frank Stein, Michael Spiegel
Initial stages of Al₂O₃ growth on Fe-Al intermetallics

S10PO2

Yves Fuchs, Etienne Balan, François Farges, Jorge Linares, Adolf Horn
Fe and Ti in dumortierite. A FTIR, EPR, Mössbauer and Fe/Ti K-edge XANES study

S10PO3

Heidi Hoefler, Gerhard Brey, Bill Hibberson
Iron Oxidation State Determination in Synthetic Pyroxenes by Electron Microprobe

S10PO4

Ralf Engelmann, Ursula Sauerzapf, Agnes Kontny, Dominique Lattard
Curie point variation in the system magnetite-ulvöspinel. Towards an improved calibration

S10PO5

Robert Linnen
The filler-rod method for redox control in cold-seal pressure vessels

S10PO6

Torsten Scherer, Dorothee J.M. Burkhard, Georg Partzsch
Surprising Surface-Oxidation of Basalt Glass in Argon

S10PO7

Roman Botcharnikov, Jürgen Koepke, François Holtz, Catherine McCammon, Max Wilke
The oxidation and structural state of Fe in hydrous ferrobasaltic melt

S10PO8

Georg Partzsch, Max Wilke, Edmund Welter, François Farges
Redox Reactions in Silicate Melts Monitored with "Static" In-situ Fe K-edge XANES