

## European Networks Focus on Advanced Materials

The European Networks on Advanced Materials were established in 1987 to enhance scientific and technical cooperation between research teams from different countries. With the assistance of industrial and public institutions and with the support of the Council of Europe and the Commission of the European Communities, the European Materials Research Society is continuing to develop these networks. Eleven networks have established programs, and three are in the initial stages of development (see table).

This article is part of a continuing series that will focus on the philosophies, aims and activities of the separate networks as described by their chairmen. Features this month is Network 3 on Crystal Growth and Solidification of Metals.

A brochure detailing all the networks is available from: P. Siffert, Chairman, European Materials Research Society, Centre de Recherches Nucléaires, 23, rue de Loess, F-67037, Strasbourg, France; telephone 88 28 65 43; fax 88 28 09 90.

### Network 3—Crystal Growth and Solidification of Metals

Chairman: H. Fredriksson, Royal Institute of Technology, Stockholm, Sweden.

This network aims to be a forum for scientists in the field of casting, crystal growth and solidification to discuss results and exchange ideas. The participants in the network are from nine different laboratories coming from six different countries.

During the past year's meetings the participants have informed each other about the activities at each laboratory, and they have discussed the possibilities of cooperative efforts.

Through these discussions, cooperative work has been started in the field of "computer simulation of casting and solidifica-

### E-MRS Networks on Advanced Materials

Network Number	Theme	Group Leaders
1	Laser chemistry	K.L. Kompa, E.F. Krimmel (FRG)
2	Solid state ionics	M. Balkanski (France)
3	Modeling of solidification	H. Fredriksson (Sweden)
4	Metastable alloy production	J. Bottiger, B. Stritzker, M. von Allmen (Denmark, FRG, Switzerland)
5	Microanalysis of semiconductors	E. Sirtl, A. Cullis (FRG, UK)
6	High energy ion implantation	G.G. Bentini (Italy)
7	II-VI Te-based semiconductors	R. Triboulet (France)
8	Biomaterials	D. Muster (France)
9	Gallium arsenide	H.S. Rupprecht, W. Wetting (FRG)
10	Metal matrix composites	G. Chadwick (UK)
11	Electroactive polymers	M. Zerbi (Italy)

**Emerging Networks:** Superconducting ceramics, Materials under microgravity, InP and related III-IV materials.

tion processes." Further cooperative ventures in "the effect of convection on crystal growth and solidifications" are also being considered. In both fields researchers from laboratories other than the ones in the network participate.

The other network goal is to increase knowledge in the field. Different types of

conferences, workshops and summer schools are planned by researchers in the network. Last year, a conference about solidification processing was organized in Sheffield. This year, a workshop will be held in Zermatt about "solidification microstructures." A summer school in Stockholm on "solidification and casting of metals" will also be organized.

Computer simulation of solidification processes will in the future be combined with the CAD/CAM system in order to give the constructors a tool to foresee the properties of a material. Computer simulation of the solidification process will also be a tool for the production engineer in order to minimize the number of faults during production. The beginning of the simulation process is the calculation of temperature distribution during the solidification process. As stated above, cooperative work is going on in this field between different laboratories in Europe.

### Laboratories Participating in Network 3

Dept. des Matériaux, Ecole Polytechnique de Lausanne, Switzerland

Institut für allgemeine Metallurgie, Technische Universität Clausthal, W. Germany

Giesserei Institut, Aachen, W. Germany

University of Sheffield, United Kingdom

Dept. of Casting of Metals, Royal Institute of Technology, Stockholm, Sweden

Ecole des Mines, Nancy, France

Institut de Mécanique de Grenoble, France

Laboratoriet for Varmeisolering, Danmarks tekniske Højskole, Lyngby, Denmark

University of Oxford, United Kingdom

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