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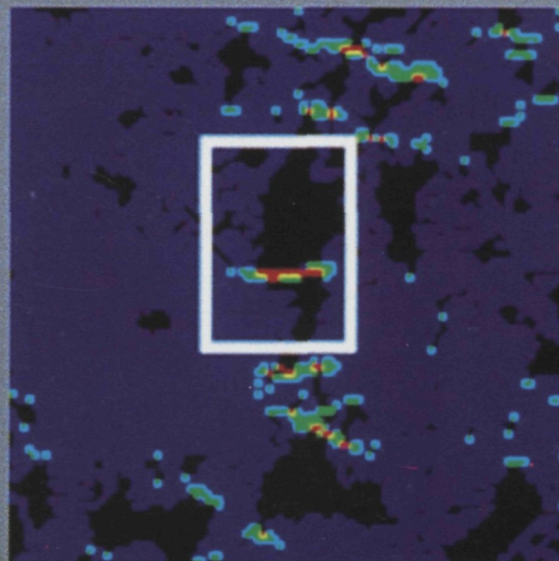
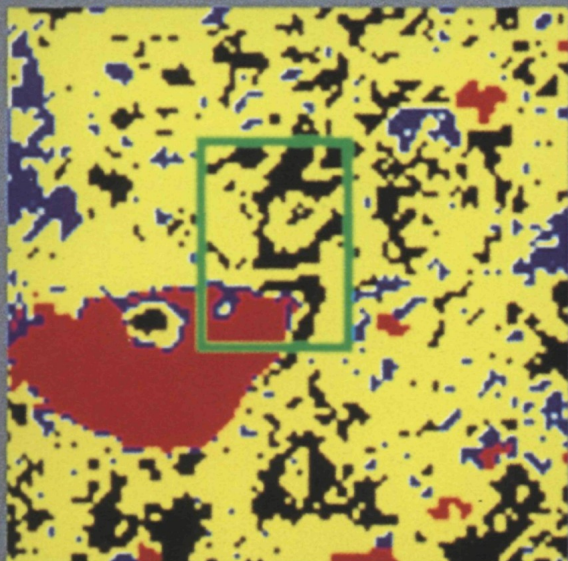
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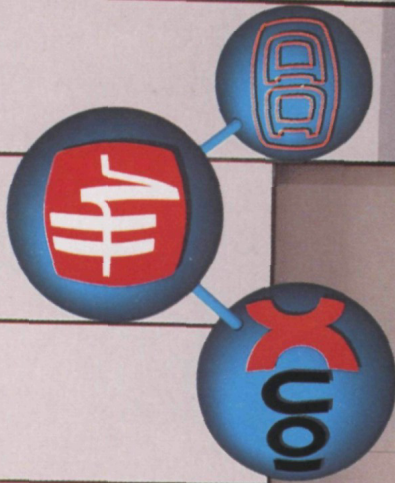
March 1993, Volume XVIII, No. 3



Advanced Cement-Based Materials



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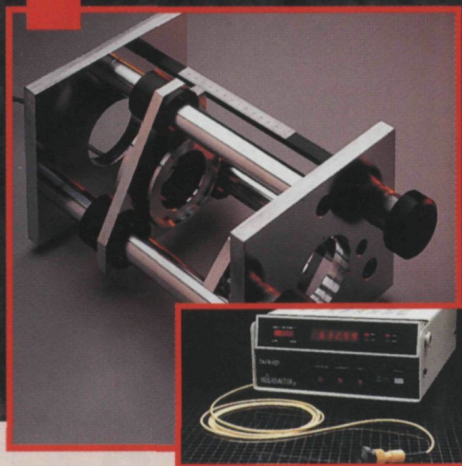
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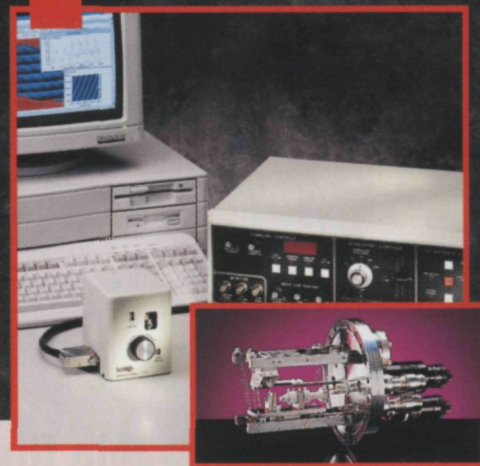
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A Publication of the Materials Research Society

Volume XVIII, Number 3 ISSN: 0883-7694 CODEN: MRSBEA

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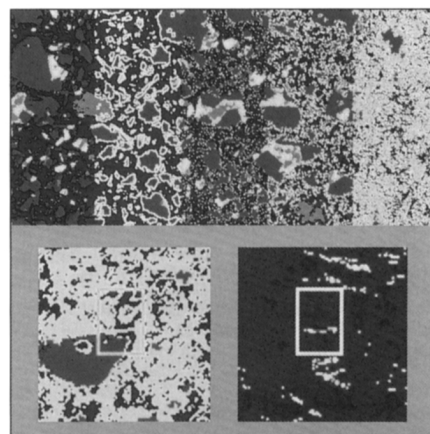
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ON THE COVER: The five sections of the upper half of this photo, from left to right, show different stages in a microstructure development model of Portland cement hydration. The first section shows the initial particles before the beginning of hydration. The fifth section shows the cement-to-water mixture after 76% of the cement has hydrated, with the dominant product phase being the yellow calcium silicate hydrate gel surrounding the particles.

The lower left corner of the photo is a micrograph of a real cement paste sample, where red, blue, and yellow are the solid phases, in decreasing order of stiffness, and black is water-filled pore space. The lower right image shows the horizontal stress under an applied horizontal strain, where red, green, and blue denote high, medium, and low stress, respectively. For details on the color-to-chemical phase assignments, see "Computational Materials Science of Cement-Based Materials," by E.J. Garboczi and D.P. Bentz, p. 50.

About the Materials Research Society

The Materials Research Society (MRS), a non-profit scientific association founded in 1973, promotes interdisciplinary goal-oriented basic research on materials of technological importance. Membership in the Society includes nearly 11,000 scientists, engineers, and research managers from industrial, government, and university research laboratories in the United States and nearly 50 countries.

The Society's interdisciplinary approach differs from that of single-discipline professional societies because it promotes information exchange across the many technical fields touching materials development. MRS sponsors two major international annual meetings encompassing approximately 50 topical symposia, and also sponsors numerous single-topic scientific meetings. The Society recognizes professional and technical excellence, conducts short courses, and fosters technical interaction in local geographic regions through Sections and University Chapters.

MRS participates in the international arena of materials research through the International Union of Materials Research Societies (IUMRS). MRS is an affiliate of the American Institute of Physics.

MRS publishes symposium proceedings, *MRS Bulletin*, *Journal of Materials Research*, and other publications related to current research activities.

MRS Bulletin (ISSN: 0883-7694) is published 12 times a year by the Materials Research Society, 9800 McKnight Road, Pittsburgh, PA 15237. Application to mail at second class rates has been approved at Pittsburgh, PA and at additional mailing offices. POSTMASTER: Send address changes to *MRS Bulletin* in care of the Materials Research Society, at the address listed; phone (412) 367-3003; Fax (412) 367-4373.

Additional copies of articles in the *MRS Bulletin* may be made at \$1.75 per article. This fee can be paid to the Materials Research Society through the Copyright Clearance Center, Inc., 27 Congress Street, Salem, MA 01970.

Membership in MRS is \$70 annually for regular members, \$25 for students and retired members. Dues include an allocation of \$25 (\$15 for students and retirees) to a subscription to *MRS Bulletin*. Individual member subscriptions are for personal use only. Non-member subscription rates are \$106 for one calendar year (12 issues) within the U.S.A. and \$156 elsewhere. Single copies may be purchased for \$16 each. Send subscription orders to Subscription Department, Materials Research Society, 9800 McKnight Road, Pittsburgh, PA 15237.

MRS Bulletin is included in Current Contents/Physical, Chemical & Earth Sciences™, Research Alert, and the Materials Science Citation Index™. Back volumes of *MRS Bulletin* are available in 16mm microfilm, 35mm microfilm, or 105mm microfiche through University Microfilms Inc., 300 North Zeeb Road, Ann Arbor, Michigan 48106.

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