AMPTIAC
ADVANCED MATERIALS AND PROCESSES TECHNOLOGY

# THE AMPTIAC NEWSLETTER, FIRST QUARTER, 1997

Volume 1, Number 1

## Welcome

It is a great pleasure to participate in the first edition of the Advanced Materials and Processes Technology Information Analysis Center (AMPTIAC) *Newsletter*. AMPTIAC is a uniquely valuable resource for the materials and structures community. Sponsored by the Defense Technical Information Center, it is the successor of four materials information analysis centers…

- Ceramic Information Analysis Center (CIAC)
- High-Temperature Materials Information Analysis Center (HTMIAC)
- Metals Information Analysis Center (MIAC)
- Metal Matrix Composites Information Analysis Center (MMCIAC)

*Dr. Lewis E. Sloter II, Contracting Officer's Technical Representative (COTR) cuts the ribbon to officially open the AMPTIAC facilities in Rome, NY. Assisting is Marye Jo Timmons, AMPTIAC point of contact at the Defense Technical Information Center (DTIC), the Department of Defense sponsoring agency.*

The success of integrated product development teams and the achievements of multi-disciplinary research strategies have proven that synergies accrue faster and more effectively in a combined center with a broad charter and an equally broad expertise and tools base. The AMPTIAC charter expands on the missions of these former centers to include…

- Organic structural materials and organic matrix composites
- Electronic, optical, and photonic materials
- Special function materials, e.g., coatings, elastomers, and corrosion control materials.

AMPTIAC will become a first stop for rapid information dissemination and unbiased analysis, building upon its current holdings and the analytical expertise of its personnel. AMPTIAC has the capacity to become a performing resource, to assist Defense and other customers in specialized information analysis, training, the conduct of workshops and conferences, and other tasks. I am certain that AMPTIAC will soon be recognized throughout the materials and structures communities of the Department of Defense and the Nation.

This newsletter is only one of the means by which AMPTIAC will convey its capabilities and conduct a dialogue with current and potential customers. AMPTIAC will participate in materials conferences and workshops, will be on the internet, and available at the end of a phone line in the person of a knowledgeable analyst. Both the AMPTIAC management and I welcome any comments that you, the users, have on this subject.

Lewis Sloter
Staff Specialist–Materials and Structures
Office of the Director, Defense Research & Engineering
Contracting Officer's Technical Representative for AMPTIAC



*The AMPTIAC Newsletter is published by AMPTIAC, a DoD Information Analysis Center. Please, if you wish to contact us you may do so at…*

PHONE: 315.339.7117
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http://rome.iitri.com/amptiac

### Visit AMPTIAC On The Web!

The AMPTIAC World Wide Web site is located at URL: http://rome.iitri.com/amptiac/. At this time, many of our pages are still under construction. In the future, the AMPTIAC site will include complete listings of AMPTIAC products, the *AMPTIAC Newsletter*, all the *MaterialEASE* information sheets (*see story below*), and current news-of-interest to the materials community. It is our intent to make the AMPTIAC web site the premier reference on materials and processes technology. Your comments on the site are always welcome.

**http://rome.iitri.com/amptiac/**

### MaterialEASE: A New AMPTIAC Product

Watch for a new AMPTIAC product called *MaterialEASE*. This will be a short treatise, usually four pages, on a basic topic or issue in materials. Intended to introduce technical subjects to managers and non-specialists, it will include a basic bibliography and a technical summary prepared by an expert. Potential topics include…

- Basic Corrosion Control
- Material Selection References
- Materials for High-Temperature Applications
- New Developments in Electronics Packaging
- Selecting Organic Structural Materials
- Basics of Fiber Optics
- Practical Guide to Ceramic Materials
- Best Commercial/Industry Components and Practices
- Environmental Protection Material Considerations
- Basic Materials Properties
- Quality Standards
- Where Photonics Makes Sense
- Selecting Adhesives
- Plastic Optics
- IR Transparency Materials
- Photonic Engineering

**"MaterialEASE: a new product for managers and non-specialists"**

*Don't see the topic of most interest to you? Drop us a line.*

### About IITRI

IIT Research Institute (IITRI), operator of AMPTIAC, is one of America's largest independent, not-for-profit contract research organizations. Established in Chicago in 1936, IITRI employs about 1,100 scientists, engineers, and support staff, conducting research in virtually all of the physical and biological sciences and related technologies. IITRI undertakes about 600 research projects annually.

AMPTIAC is operated by the Engineering and Information Systems Department of IITRI, headquartered in Lanham, MD. The department works in several broad technologies: assurance technology, software engineering, manufacturing technology, environmental analysis, and genetics research. Along with AMPTIAC, the department operates two other DoD Information Analysis Centers: the Reliability Analysis Center (RAC) and the Manufacturing Technology Information Analysis Center (MTIAC). AMPTIAC and RAC are co-located in Rome, NY.

IITRI also operates two DoD Information Analysis Centers from its Applied Sciences Department, centered in Chicago, IL. These are the Guidance and Control Information Analysis Center (GACIAC) and the Defense Modeling, Simulation, and Tactical Technology Information Analysis Center (DMSTTIAC).

IITRI operates several other centers-of-excellence, including the ADA Information Clearinghouse, the DoD Instrumented Factory for Gears, the NASA Metallurgical Research Facilities, and others.

## The DoD IAC Program

AMPTIAC is one of 12 DoD Information Analysis Centers (IACs) managed by the Defense Technical Information Center (DTIC). Each IAC is chartered to collect, analyze, synthesize, and disseminate technical information in a specialized area of interest to the DoD. IAC products and services include the creation and maintenance of data bases, the publication of reference documents, the promotion of current awareness through newsletters and training courses, and consulting services ranging from gratis responses to technical inquiries to contracted technical analysis.

Current DTIC sponsored IACs are…

- Advanced Materials and Processes Technology IAC (AMPTIAC)
- Chemical Warfare/Chemical and Biological Defense IAC (CBIAC)
- Chemical Propulsion Information Agency (CPIA)
- Crew Systems Ergonomics IAC (CSERIAC)
- Data and Analysis Center for Software (DACS)
- Defense Modeling, Simulation, and Tactical Technology IAC (DMSTTIAC)
- Guidance and Control IAC (GACIAC)
- Infrared IAC (IRIA)
- Manufacturing Technology IAC (MTIAC)
- Nondestructive Testing IAC (NTIAC)
- Reliability Analysis Center (RAC)
- Survivability/Vulnerability IAC (SURVIAC)

DTIC has also initiated a virtual IAC dealing with information security, called the Information Assurance Technology Analysis Center (IATAC). This IAC is not a physical entity, but draws upon other IAC resources on an ad hoc basis.

DTIC also maintains a hub page on the World Wide Web with information on the program and links to all the IACs: URL: http://www.dtic.dla.mil/iac/. The page also provides links to other specialized information centers established and managed by several DoD components. These are…

- Airfields, Pavements, and Mobility IAC (APMIAC)
- Coastal Engineering IAC (CEIAC)
- Cold Regions Science and Technology IAC (CRSTIAC)
- Concrete Technology IAC (CTIAC)
- DoD Nuclear Information and Analysis Center (DASIAC)
- Hydraulic Engineering IAC (HEIAC)
- Plastics Technical Evaluation Center (PLASTEC)
- Soil Mechanics Information and Analysis Center (SMIAC)
- U.S. Air Force Aerospace Structures Information and Analysis Center (ASIAC)
- U.S. Air Force Supportability Investment Decision Analysis Center (SIDAC)
- U.S. Army Shock and Vibration IAC (SAVIAC)

Many IAC products and services are available without charge. Some will require a fee. No charge is assessed without the knowledge and explicit agreement of the customer. Many of the IACs will provide a user's guide on request. A blanket request for help may be made to all DoD IACs and some of the service-sponsored centers by sending an e-mail message to dodiacs@dtic.mil.

More information on the DoD IAC program and assistance in locating an IAC of interest is available from…

Defense Technical Information Center
ATTN: DTIC-AI
8725 John J. Kingman Road, Suite 0944
Fort Belvoir VA 22060-6218

Phone: (703) 767-9120, Fax: (703) 767-9119, E-mail: iac@dtic.mil

## AMPTIAC Newsletter Changes Planned

This issue of the *AMPTIAC Newsletter* is dedicated to introducing AMPTIAC and its place in the DoD Information Analysis Center program. Future issues will contain more technical content. It is likely that future *Newsletters* will contain sections each covering one of the major categories of materials under AMPTIAC's charter…

- Ceramic and ceramic composites
- Organic structural materials and organic matrix composites
- Monolithic metals, alloys, and metal matrix composites
- Electronic/optical/photonic materials
- Environmental protection and special function materials

While we are evolving, your comments and suggestions are valued. Let us know what you would like to see in the *AMPTIAC Newsletter*.

## Papers Sought: Electronics Manufacturing for the Environment

The Electronics Manufacturing Productivity Facility (EMPF), a national center of expertise dedicated to advancing the state of the art in electronics and increasing domestic productivity in electronics manufacturing, seeks papers for a book, *Electronics Manufacturing for the Environment*, with a new volume to be published every six months starting the end of 1996. The book will address such topics as…

- Non-ozone depleting solvents
- Closed-loop cleaning
- Solvent recycling
- Low-residue/no-clean flux
- Alternate board materials and finishes
- Lead-free solder
- PWA recycling
- Any work that reduces manufacturing impact on the environment.

Papers (including published papers), short reports, and other useful information should be sent to Tim Crawford, EMPF, 714 North Senate Avenue, Indianapolis, IN 46202-3112. Tel: (317) 226-5634, E-mail: tim.crawford@empf.org.

## International Environmental Standards Approved

ISO 14001, the international standard on environmental management systems, and ISO 14004, which provides general guidelines for environmental management systems, have been officially approved by 40 voting countries, including the United States.

The standards are intended to be applied in a manner analogous to the ISO 9000 series on quality management systems. This entails requirements by customers for their suppliers to comply with the standards and the use of third-party auditors to certify suppliers as compliant. Compliance with ISO 9000 series is mandated by many agencies, including the European Union in directives governing certain classes of products, and American automakers in the joint QS 9000 regulations for suppliers to Ford, Chrysler, and General Motors. There are over 100,000 sites in 86 countries registered as compliant to ISO 9000. While there is not yet an established market of requirements for ISO 14000, nor a community of registered suppliers, there is great interest in the standards and a cadre of potential auditors. One of these, Perry Johnson, Inc., offers a free ISO 14000 Executive Overview booklet. Call Tom Parker at (800) 800-0450 for a copy.

**The AMPTIAC Newsletter is accepting advertising... Contact us! We reach the materials community.**

## Advertisers Welcome

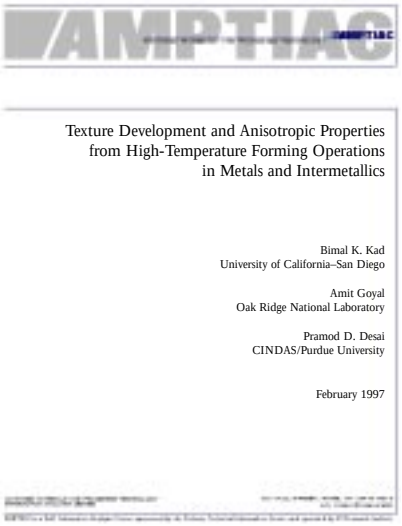
The Defense Technical Information Center (DTIC) permits the DoD Information Analysis Centers to publish appropriate advertisements in their Newsletters. AMPTIAC will consider including advertisements from a business card to a full-page ad in the *AMPTIAC Newsletter*. For rates and expected circulation figures, contact AMPTIAC by any of the means listed in the box on the back cover.

## Industry News

The *AMPTIAC Newsletter* needs your inputs. Any information of interest to the materials community will be welcome. We can use…

- Technical articles
- News briefs
- Conference announcements
- Calls for papers
- Topical humor

Send to the *AMPTIAC Newsletter* at the mail or E-mail addresses on the back cover, or call to discuss your contribution. We and our readers, your colleagues, will greatly appreciate your contributions.




## AMPTIAC Offers New Report

*Texture Development and Anisotropic Properties from High-Temperature Forming Operations in Metals and Intermetallics*, by Bimal Kad, Amit Goyal, and Pramod Desai, is now available from AMPTIAC at a price of $40 per copy. This report presents the findings of a review of deformation and recrystalization textures in FCC, BCC, and HCP metals and related intermetallics. Texture, rather than being a macroscopic, scale-dependent property, was found to be sensitive to phenomena operating at the dislocation and atomistic level. Deformation textures are dependent on crystal structure (ordered or disordered) and deformation system (slip and/or twinning), and may serve as signatures of overall deformation processes. Texture has been well studied in disordered metal and alloys, but only peripherally explored in intermetallics, where there is a need to establish a data base.

The Center for Information and Numerical Data Analysis and Synthesis (CINDAS), of Purdue University, developed this report under a previous contract for the Metals Information Analysis Center (MIAC). MIAC was one of four materials-related Information Analysis Centers that were incorporated to form AMPTIAC.

Information on availability and cost of new AMPTIAC products will be published when available in the *AMPTIAC Newsletter* and posted on the AMPTIAC website (http//rome.iitri.com/amptiac). Queries may be made to AMPTIAC at (315) 339-7117 or fax (315) 339-7107.

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### Recent Advances in Corrosion Fatigue
April 15-16, 1997
Sheffield, UK
Contact: Conference Department, the Institute of Materials.
Fax: 0171-823-1683.

### EUROMAT 97/5th European Conference on Advanced Materials, Processes, and Applications
April 21-23, 1997
Maastricht, the Netherlands
Contact: EUROMAT 97, PO Box 390, NL330, Aj Zwijndrecht,
Tel: 31-786192655, Fax: 31-786195735.

### 4th International Conference on High-Temperature Intermetallics
April 27-May 1, 1997
San Diego, CA
Contact: Mr. R. Diana, Polytechnic University, Six Metrotech Center, Brooklyn NY 11201.

### 1997 International Environmental Conference
May 4-7, 1997
Minneapolis, MN
Contact: TAPPI, PO Box 105113, Atlanta, GA 30348-5113.
Fax: (770) 446-6947.

### Symposium on the Effects of Product Quality on Structural Durability
May 5-6, 1997
St. Louis, MO
Contact: Dorothy Savini, ASTM, 100 Barr Harbor Dr., West Conshohocken, PA 19428-2859. Tel: (610) 832-9677.

### 7th Symposium on Composite Materials Fatigue and Fracture
May 6-8, 1997
St. Louis, MO
Contact: K. Schaaf, ASTM Committee D-30.
Tel: (215) 299-5529.

### ICAPC-97/International Conference on Advanced Polymer Composites
June 3-5, 1997
Beijing, China
Contact: Prof. Bor Z. Jang, 201 Ross Hall, Auburn U., AL 36849.
Tel: (205) 844-3400, E-mail: bzjang@eng.auburn.edu.

### PRICM3/Pacific Rim International Conference on Advanced Materials and Processing
June 12-16, 1997
Honolulu, HI
Contact: Peggy Weiss, TMS, 420 Commonwealth Dr., Warrendale, PA 15086-7514.
Tel: (412) 776-9000, ext. 227, Fax: (412) 776-3770.

### 4th International Special Emphasis Symposium on Superalloys, 718, 625, 706, and Derivatives
June 15-19, 1997
Pittsburgh, PA
Contact: Edward A. Loria, Alloy 718-625-706 Committee
1825 Taper drive, Pittsburgh, PA 15241.
Tel: (412) 221-5905, Fax: (412) 221-7355.

### 8th International Symposium on Non-Destructive Characterization of Materials
June 15-20, 1997
Boulder, CO
Contact: Debbie Harris: Tel: (410) 516-5397, Fax: (410) 516-7247

### ICAF '97/International Committee on Aeronautical Fatigue
June 16-20, 1997
Edinburgh, Scotland
Contact: ICAF '97, Concorde Services, Ltd., Unit 5, SECC, Glasgow G3 8YW, Scotland UK.
Tel: 44-141-221-3553, Fax: 44-141-221-3678.

### 1997 International Conference on Powder Metallurgy & Particulate Materials
June 29-July 2, 1997
Chicago, IL
Contact: MPIF-APMI International, 105 College Road East, Princeton, NJ 08540-6692
Tel: (609) 452-7700, Fax: (609) 987-8523.

### Thermec '97/International Conference on Thermomechanical Processing of Steels and Other Materials
July 7-11, 1997
Wollongong, Australia
Contact: T. Chandra, Dept. of Materials Engineering, U. of Wollongong, Wollongong 2500, Australia. Tel: 61-42-213-008, Fax: 61-42-213-112, E-mail: t.chandra@uow.edu.au.

### EMCR 97/6th Symposium on Electrochemical Methods in Corrosion Research
August 25-29, 1997
Trento, Italy
Contact: Organizing Committee EMCR 97, Laboratory of Electrochemistry, Department of Materials Engineering, I-38050, Mesiano, Trento, Italy. Tel: 39-461-882428, Fax: 39-461-881977.

### 2nd International Symposium on Structural Intermetallics
September 21-26, 1997
Champion, PA
Contact: TMS Technical Programming Department, 420 Commonwealth Drive, Warrendale, PA 15086.
Tel: (412) 776-9000, Fax: (412) 776-3770.

### Eurocorr '97/European Corrosion Congress
September 22-15, 1997
Trondheim, Norway
Contact: Sintef Corrosion Centre, Trondheim, N-7034, Norway.
Fax: 47-73-59-68-92.

### 1997 Short Courses Offered from UCLA...

The Winter-Spring selection of courses offered by the UCLA Extension includes a variety of materials-related courses…

| | |
|---|---|
| • Advanced Analysis and Design of Composite Material and Structures | 17-21 March |
| • Repair of Composite Structures | 7-9 April |
| • Composite Materials: Selection, Design, and Manufacture for Engineering Applications | 7-11 April |
| • Materials Selection for the 21st Century | 23-25 April |
| • Preliminary Airframe Sizing | 28 April-2 May |
| • Honeycomb Sandwich Structures | 28 April-2 May |
| • Rapid Prototyping: Technologies and Applications | 5-7 May |

Courses will be held at the UCLA Campus in Westwood Village, CA. For further information, contact…

UCLA Extension, Short Course Program Office
10995 Le Conte Avenue, Suite 542, Los Angeles, CA 90024-2883

Tel: (310) 825-3344
Fax: (310) 206-2815
E-mail: mhennes@yunex.ucla.edu.

Course details may be found on the Web at http://www.unex.ucla.edu/shortcourses

## To contact AMPTIAC

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# AMPTIAC

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AMPTIAC

## Inside this Issue…




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