

Message from the Chairman

With profound gratitude and great humility, I and my Executive Committee members express sincere thanks to all members of the IIM Kalpakkam Chapter for reposing confidence in us to take forward the Chapter. Sustaining the exemplary performance of last year's committee is indeed challenging and requires dedicated involvement of the EC members.

We have planned a series of activities this year including BPMM Quiz, theme meetings, workshops, lectures and membership drive. Apart from this, we are also planning innovative activities with young members to ensure knowledge promotion through IIM-HRDC KC events. Successful conduct of these professional activities requires dedicated efforts of conveners and EC members and more importantly, active participation of all the members. We are committed to work for the Chapter with the guidance of senior members and with the co-operation and total commitment of all, towards successful execution of all the activities.

I urge one and all to join us in further strengthening of our Chapter.



Dr. B.P.C. Rao

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Excerpts from 29th Annual General Body Meeting

At the 29th Annual general body meeting of the IIM Kalpakkam Chapter, Dr. U. Kamachi Mudali, Chairman, delivered the welcome address. He shared the happy news with the members that this year also Kalpakkam chapter has received the 'Best Chapter' award in the medium chapter category and the treasurer, Dr. Rani P. George has been given the certificate of honour for her effort in promoting the chapter activities. He also informed that the initiative taken by the chapter in organizing lot of theme meetings and workshops has encouraged many youngsters to join as IIM members increasing the chapter strength to 230.

Dr. R. Sandhya then presented the secretary's report where she highlighted many awards and honours won by the chapter members and also gave details of the theme meetings, workshops and seminars conducted by the chapter in the year 2010-11. The secretary's report was then proposed to be accepted by Shri. R.V. Subba Rao and seconded by Dr. Phaniraj. Following this, the treasurer's report was presented by Dr. Rani P. George which was proposed by Shri. T. Subba Rao and seconded by Shri. S. Nagaraju.

After the treasurer's report the chairman informed the members that as in the previous year this year also there was a competition at the chapter level in the young and general researcher category for the best paper award. The competition was made tougher this time with marks being awarded in four separate groups specified for the evaluation. The 20 journal papers received in each category were evaluated by a panel of eminent judges, out of which two papers were selected in each category. The chapter awards were presented to the first authors of the publications by Dr. U. Kamachi Mudali.

The chairman also informed the gathering that the present office bearers have been serving the chapter for the past four years and chapter activities will be carried forward by a new executive committee. He informed the members that plan for the future activities has not been listed in the secretary's report since it has to be proposed by the new committee. However, two programmes of the chapter i.e Prof. Brahma Prakash Memorial materials quiz and the workshop on metallographic practices conducted in Annamalai University will be continued this year also. To inculcate fresh ideas into the chapter activities and to sustain the popular activities of the chapter, active and dynamic members have been installed in the executive committee for the year 2011-12.

In the absence of Dr. B.P.C. Rao, Chairman of the executive committee 2011-12, Dr. P. Parameswaran, Vice-chairman thanked the immediate past chairman Dr. U. Kamachi Mudali for the encouragement and support. The meeting concluded with a vote of thanks by Smt. C. Sudha.

IIM-Kalpakkam Chapter EC Members

Dr. B.P.C. Rao	- Chairman	Shri. V. Karthik	- Member
Dr. P. Parameswaran	- Vice-Chairman	Shri. A. Ravishankar	- Member
Smt. C. Sudha	- Secretary	Shri. S. Nagaraju	- Co-opted Member
Shri. A. Viswanath	- Joint Secretary	Shri. Sunil Goyal	- Co-opted Member
Smt. N. Sivai Bharasi	- Treasurer	Dr. R. Krishnan	- Co-opted Member
Dr. Rani P. George	- Member	Shri. M. Shanmugavel	- Co-opted Member
Dr. Arup Dasgupta	- Member	Dr. U. Kamachi Mudali	- Ex-Officio Member
Smt. B. Sasi	- Member		
Dr. R. Ramaseshan	- Member		

Technical Lectures

S. No.	Title of the talk	Name of the speaker	Affiliation	Date
1.	Recent Advances in Micro-magnetic Nondestructive Evaluation Techniques	Dr. Gerd Dobmann	Fraunhofer Inst. Non-destructive testing (IZFP), Germany	25-07-11
2.	Some Studies of Interfaces in Ceramic Materials	Prof. C. Barry Carter	University of Connecticut, USA	04-07-11
3.	Conducting Failure Analysis of Engineering Components	Dr. S.K. Bhaumik	NAL, Bangalore	14-06-11
4.	India's Legendary Wootz Steel as the Foundation for Materials Science Paradigm	Prof. S. Ranganathan	IISc, Bangalore	19-05-11
5.	Materials for FBRs & Reprocessing plants	Dr. T. Jayakumar	IGCAR, Kalpakkam	31-03-11
6.	Applicability of constitutive models for cyclic plasticity and implementation in finite element framework	Dr. P. Chellapandi	IGCAR, Kalpakkam	18-03-11
7.	Biological Elemental Transmutations	Prof. Volodymyr Vy-sotskyy, Kiev	National Shevchenko University, Kiev, Ukraine	14-02-11
8.	Irradiation Effects in Austenitic and F-M Alloys	Prof. Gary S. Was	University of Michigan, U.S.A	07-02-11
9.	A New Method to Evaluate Adhesion Strength of Thermal Barrier Coatings	Prof. Masakazu OKAZAKI	Nagaoka University Technology, JAPAN	06-01-11
10.	Point Defect Hardening in Oxides and Nitrides after Neutron Irradiation	Prof. Hisayuki SUEMATSU	Nagaoka University of Technology, JAPAN	06-01-11

Article

Characterization of Microstructures using Eddy Current NDE Technique

Characterization of microstructures in metallic materials is important to ascertain that there is no formation of undesirable microstructural phase during manufacturing stages and also during service life. Non-destructive evaluation (NDE) techniques such as ultrasonic and eddy current (EC) techniques measure changes in mechanical and electrical properties of materials to enable characterization of microstructures. EC technique works on the principle of electromagnetic induction and involves measurement of change in coil impedance in the same coil (or induced voltage in an adjacent coil) due to change in microstructure that influences the electrical resistivity and magnetic permeability of the material. The magnitude and phase of the induced voltage, for example, can be used to ensure that desired phases are formed with adequate material properties after heat treatment, in other words, to qualify the adequacy of heat treatment during manufacturing stage. Recently, EC technique has been successfully applied for characterization of microstructures in non-magnetic VT 14 alloy (Ti-4.5Al-3Mo-1V) as well as magnetic M250 grade Maraging steel, as detailed below, through accurate measurement of electrical resistivity and magnetic permeability.

Titanium alloys are subjected to various heat treatments to obtain desired microstructures as well as controlled α - β transformation that is attributed to formation of various phases. VT 14 alloy specimens have been subjected to solutionizing for 1 h at selected temperatures in the range of 923-1303 K at an interval of 50 K, followed by water quenching. These specimens have been examined by EC technique. Through systematic measurement of magnitude and phase of the induced voltage, quantitative characterization of microstructural changes associated with electrical resistivity has been attempted after calibration using Ti-6Al-4V, Hastelloy X and Hastelloy B standards (Fig. 1). The change in electrical resistivity of the specimens has been correlated with optical microscopy observations (Fig. 2). A drastic reduction in resistivity of the alloy beyond 1123 K due to formation of α' martensite phase has been observed. The electrical resistivity of α' martensite phase of the chosen VT 14 alloy has been determined as $1.04 \mu\Omega\text{-m}$ (Fig. 3). The resistivity of unstable β phase has been compared with that of α and α' phases. Possible reasons for higher resistivity of β phase and lower resistivity of α' have been arrived at based on the rule of mixtures as well as scattering and mobility of electrons. The studies reveal that it will be possible to identify the β transus temperature of α + β titanium alloys from the electrical resistivity data measured using the EC technique.

M250 grade Maraging steel is very attractive for aerospace applications in view of its high strength, fracture toughness and corrosion resistance. These desired properties are attained by proper heat treatment which alters both electrical resistivity and magnetic permeability. Maraging steel specimens aged at 755 K for 0.25, 1, 3, 10, 30, 40, 70 and 100 h of duration have been subjected to EC testing. The EC response from these specimens indicated that the magnetic permeability decreases with increase in ageing duration (Fig. 4). This is attributed to (a) precipitates (Ni_3Ti) and Fe_2Mo and (b) reversion of martensite to austenite phase. Studies reveal that it is possible to clearly identify correctly aged and over aged conditions based on magnitude and phase angle data of induced voltage in EC probe coil, especially with the over aged condition which is marked by formation of non-magnetic reverted austenite phase (oval cluster in Fig.4). These observations are compared with ultrasonic, X-ray diffraction and magnetic Barkhausen emission measurements and a very good agreement has been observed.

The above two example applications clearly demonstrate that eddy current technique can be used for nondestructive characterization of microstructures in both non-magnetic and magnetic alloys and also for manufacturing quality assurance in shop floors.

References:

1. B. Sasi, B. P. C. Rao, T. Jayakumar and Baldev Raj, Trans. IIM .Vol. 63(5) (2010) pp 773-777.
2. K.V. Rajkumar, B.P.C. Rao, B. Sasi, Anish Kumar, T. Jayakumar, Baldev Raj and K.K. Ray, Materials Science and Engineering A 464 (2007) pp 233-240.

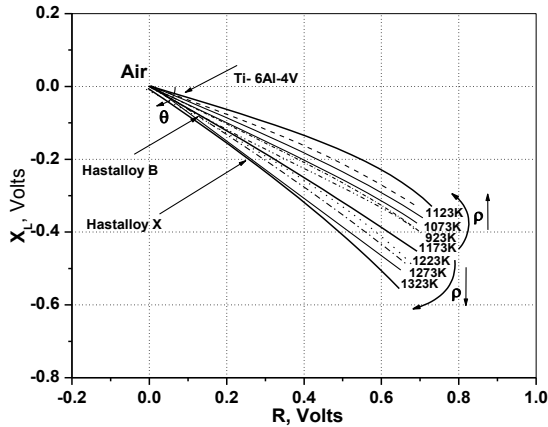


Fig. 1 EC probe coil impedance curves observed for VT-14 alloy specimens at different solutionizing temperatures

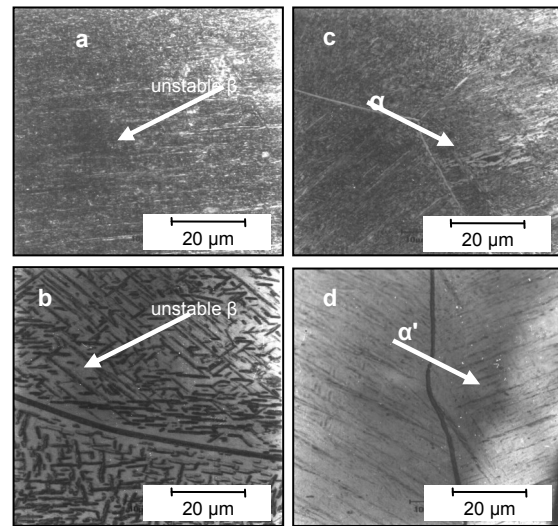


Fig. 2 Micrographs of VT-14 alloy specimen solutionized at (a)1073 K (b) 1123 K has primary α (black) in unstable β phase (white) (c) at 1173 K has primary α (black) in α' martensite phase and (d) 1273 K has only α' martensite phase

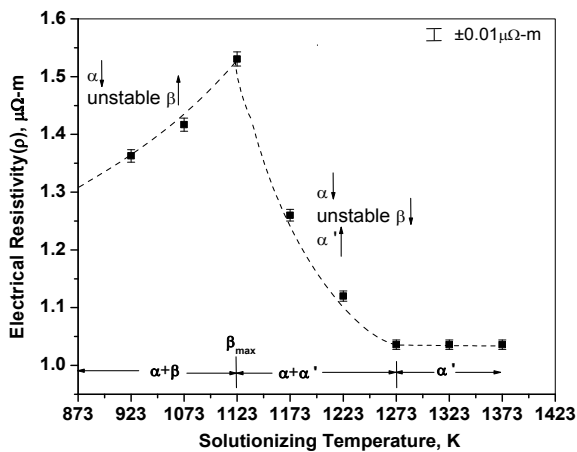


Fig. 3 Variation in electrical resistivity with solutionizing temperatures

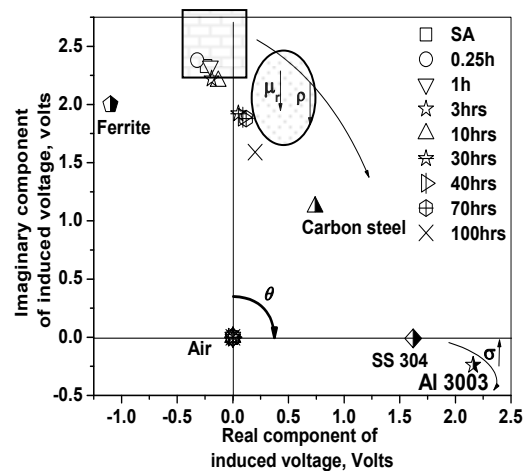


Fig. 4 Variation of EC induced voltage with aging time

For more details, please contact Mrs. B. Sasi, (sasib@igcar.gov.in)

NDED, IGCAR, Kalpakkam

Theme Meetings

Visco-plastic Constitutive Models and Finite Element Analysis in the context of PFBR

A theme meeting on the above topic was held in IGCAR on February 25, 2011. Experts in the field of finite element modeling delivered talks on application of modeling in tube sheet analysis of prototype fast breeder reactor and residual stress estimation in multi-pass welds. Shri. Kulbir Singh gave a talk on the analysis of stresses in tube sheet based on treating the perforated material as an equivalent solid material with modified elastic constants. Shri. R.P. Pandey emphasized the accurate estimation of residual stress distribution which is required as one of the basic input for the study of crack propagation behavior in the critical weld zone.

For more details, please contact Dr. R. Sandhya (san@igcar.gov.in)

Metallurgical Data Analysis

Theme meeting on “Metallurgical data analysis” was organized in IGCAR on March 10, 2011. Topic for the theme meeting was chosen to cover various aspects of data analysis including data processing, transforming and modeling for exploratory, confirmatory and predictive approaches. Opening remark was given by Dr. M.C. Valsakumar, Head, MPD, MSG followed by a talk on ‘Image analysis’ by Dr. C. Babu Rao, NDED. Shri T. Karthikeyan gave an overview talk on characterization tools for studying the structure, microstructure and micro-chemistry of materials. Dr. V. S. Srinivasan dealt with the “Prediction of mechanical properties” using ANN techniques. The theme meeting was well attended by members of the chapter as well as colleagues of IGCAR.

For more details, please contact C. Sudha (sudha@igcar.gov.in)

Alloy Design



A Theme Meeting on “Alloy Design” was organized in IGCAR on March 11, 2011 coinciding with the visit of two eminent professors to IGCAR, viz. Prof. Markus O. Speidel of Swiss Materials Science Academy, Switzerland and Prof. Jacques Foct of Universit  Lille, France. Dr. Baldev Raj, Distinguished Scientist and Former Director, IGCAR delivered opening remarks. He highlighted the need for designing suitable alloys which can withstand severe environments like high radiation field as in the case of FBRs or fusion reactors, and the elevated temperatures and pressures as anticipated in ultra supercritical power plants. First talk in the theme meeting was delivered by Prof. M.O. Speidel who shared his experience on alloy design followed by Prof. J. Foct who covered the basic mechanisms behind designing interstitial, functionally graded and thermodynamically forbidden alloys. Dr. M. Vijayalakshmi, AD, PMG delivered the last talk on alloy design for avoiding sensitization of stainless steel, preparing dissimilar weld joints without soft zones through suitable filler materials etc.

For more details, please contact Dr. P. Parameswaran (param@igcar.gov.in)

Workshop

Biological Nuclear Transmutations: Historical Perspectives & Applications

One day workshop on “Biological Nuclear Transmutations: Historical Perspective and Applications” was organized on February 15, 2011 in association with the Department of Biotechnology, SRM University, Chennai. An invited lecture on “Historical Perspectives of Biological Nuclear Transmutations” was delivered by Prof. Jean Paul Biberian, France. This was followed by another invited talk by Prof. Vladimir on “Experimental Confirmation of isotopic anomalies in Biological Nuclear Transmutations”. Other topics covered in the workshop were radioactive isotope transmutation, biological transmutation studies in waste management in nuclear industry and replication experiments on transmutation of isotopes in growing microbial associations. The workshop was attended by more than 2000 participants from various institutions like IGCAR, BARC, SRM University, Satyabama University, Stella Mary’s and Madras Christian Colleges from Chennai.

For more details, please contact Dr. Rani P. George (rani@igcar.gov.in)

IIM-HRDC Activities

- ⇒ IIM HRDC-KC organized two day course on “Materials characterization and failure analysis” on 4th and 5th March 2011 at IIT Madras. It was jointly organized by ASM International Chennai chapter.
- ⇒ In the council meeting held on 26th February 2011 at Trichy, the council members appreciated the initiative taken by IIM HRDC-KC in preparing a draft MOU with Annamalai University, Chidambaram to start a continuing distance education programme to provide certificate/diploma/PG diploma to experienced and skilled personal in metallurgy related industries. Draft MOU and comments received from the Academic Program Committee was circulated to the council members for detailed discussion in the next council meeting.

Events to look out for

Events	Convener	Date
BPMMQ 2011 (www.iim-kalpakkam.in)	Dr. Rani P. George	17 th September 2011
IIM Co-organized Events		
Clinic on Failure Analysis (CFA 2011)	Dr. P. Parameswaran	22-24th December 2011



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APPLICATION FORM FOR MEMBERSHIP

MEMBER / ASSOCIATE MEMBER / STUDENT MEMBER / LIFE MEMBER /
 SUSTAINING MEMBER / SUSTAINING MEMBER(SS) / PATRON MEMBER / DONOR MEM-
 BER / AFFILIATE MEMBER / OVERSEAS MEMBER / LIFE ASSOCIATE MEM-
 BER / STUDENT AFFILIATE MEMBER

(Please tick whichever is applicable)

Membership No.	Date of Enrolment	
Receipt No.	Date	Amount
Name of the applicant : (In Block Letters)		
Father's Name : (In Block Letters)		
Permanent Address : (Please indicate PIN Code)		
Address for Correspondence: (In Block Letters) (Please indicate PIN Code)		
Qualifications :		
Date of Birth :		
Experience (in years) :		
Name & Designation : Head of the Organisation (applicable for Sustaining / Patron / Donor Membership only)		
Tel./Fax/E-mail/Website :		
Present Occupation :		
(Please see overleaf)		

Endorsement (by 3 IIM Members (not Student) or the Employer who know the applicant well)	<u>Name</u>	<u>Membership No.</u>	<u>Signature</u>
	1. _____	_____	_____
	2. _____	_____	_____
	3. _____	_____	_____
Primary field of interest : (Please mark 1, 2, 3 in order of preference)	Ferrous Production ()	Non-Ferrous Production ()	
	Mining Beneficiation ()	Designing & Engineering ()	
	Govt./Education ()	Research ()	
Name of the Chapter you intend to be attached :			

I agree, if elected, to accept election, pay the prescribed fees, to abide by the Articles of Association of the Institute and to promote its aims and objects.

Signature of the Applicant

(For Student Members only)

I undertake to appear at the Associate Membership Examination of the Institute as per the existing rules after election and to appear at the AMIIM Examination within 18 (eighteen) months from the date of enrolment as Member subject to fulfilling all the eligibility rules. (To be signed only by applicant for Membership aspiring for appearing at the AMIIM Examination)

Signature of the Applicant

Admission Fees & Subscriptions Payable by the Applicants

MEMBER	Rs.300/- as Admission Fees & Rs.450/- as an annual subscription.
ASSOCIATE MEMBER	Rs. 250/- as Admission Fees & Rs. 350/- as an annual subscription.
STUDENT MEMBER	Rs.75/- as Admission Fees & Rs.600/- towards 3 (three) years subscriptions, and Rs. 150/- towards registration fees, viz. A total of Rs.825/-.
STUDENT MEMBER (College Students studying Metallurgy)	Rs.75/- as Admission Fees & Rs.200/- as an annual subscriptions
LIFE MEMBER	Rs. 300/- as Admission Fees & Rs. 6000/- as Membership Fees Or Rs. 300/- as Admission Fees & Rs.3200/- each in two installments as Membership Fees, within the same Financial Year
LIFE ASSOCIATE MEMBER	Rs. 3,000/- in a single installment or Rs. 3200/- in four installments of Rs. 800/- each, within the same Financial Year.
SUSTAINING MEMBER	Rs. 10,000/- per annum.
SUSTAINING MEMBER (SS)	Rs. 6000/- per annum.
PATRON MEMBER	Rs.2,50,000/- in one installment or 6 (six) annual installments of Rs.45,000/- each.
DONOR MEMBER	Rs.1,25,000/- in one installment or 6(six) annual installments of Rs.22,500/- each.
AFFILIATE MEMBER	Rs.400/- as Admission Fees & Rs.650/- as an annual subscription.
STUDENT AFFILIATE MEMBER	A Student Affiliate Member shall not pay any admission fees and subscription.



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MEMBERSHIP RULES

MEMBERSHIP :

There shall be the following classes of membership:

(a) Members, (b) Associate Members, (c) Student Members, (d) Life Members, (e) Honorary Members, (f) Sustaining Members, (g) Patron Members, (h) Donor Members, (i) Affiliate Members, (j) Fellows (omitted w.e.f 1.8.2000) , (k) Life Fellows and (l) Overseas Members. (w.e.f 1.8.2000), (m) Life Associate Members, (n) Student Affiliate Members.

QUALIFICATION:

(a)	Members: A candidate for admission to the class of Members or for transfer into the class shall not be less than 25 years of age;
(i)	Shall hold the Bachelor's Degree in Metallurgy or equivalent discipline from an Institute recognized by the Council or should have passed Parts I and II Examinations held by the IIM with at least 3 years experience; OR
(ii)	Shall hold a Master's Degree in Metallurgy or equivalent degree recognized by the Council and with one year experience; OR
(iii)	Shall hold a Bachelor's Degree in Engineering disciplines other than Metallurgy or equivalent or a Master's Degree or Doctorate in Physics or Chemistry or Geology with at least 5 years experience; OR
(iv)	Shall be a Diploma Holder in Metallurgy with at least 6 years experience; OR
(v)	Shall be a Diploma Holder in Engineering other than Metallurgy/B.Sc. with Physics, Chemistry, Mathematics/Geology and at least 7 years experience; OR
(vi)	Shall hold a Degree from a recognized University and shall be proposed / recommended by at least 3 Past Presidents of The Indian Institute of Metals.
(b)	Associate Members: A Candidate for admission to the Class of Associate Members or transfer into the Class shall be not less than 20 years of age; AND
(i)	Shall hold a Bachelor's Degree in Metallurgy or an equivalent discipline from an Institute recognised by the Council or should have passed parts I & II Examination held by the IIM;OR
(ii)	Shall hold a Bachelor's degree in Engineering discipline other than Metallurgy or equivalent or a Master's Degree or Doctorate in Physics or Chemistry or Geology with at least 2 years experience; OR
(iii)	Shall be a Diploma Holder in Metallurgy with at least 3 years experience; OR

	(iv)	Shall be a Diploma Holder in Engineering other than Metallurgy/B.Sc. with Physics, Chemistry, Mathematics/Geology and at least 4 years experience.
Note: EXPERIENCE		
Experience in Research/Teaching/Industry after graduation shall be counted for eligibility to both the classes of Membership. Experience will be in the Metallurgical field and will not include the period of Registration for a Degree or Parts I & II of IIM Examinations.		
	(c)	Student Members: A candidate for admission into the class of student member category, shall be a person, who is being educated or being trained for and who intends to adopt the profession of a Metallurgist. Student members will automatically become Associate Members as soon as they acquire necessary qualifications.
	(d)	Life Members: A member shall be a life member on paying the prescribed fees.
	(e)	Honorary Members: Shall be a person of distinction in technology or public service.
	(f)	Sustaining Members: Shall be individual, companies, corporations, firms, industrial or trade associations or such other organisation as the Council may deem as properly coming under this classification.
	(g)	Patron Members: Any Company, Institution, Government Department, Corporation or individual, connected with the metallurgical industry, education research, will be eligible to be elected as Patron Members.
	(h)	Donor Members: Any Company which satisfies the qualification for a Patron Member, but whose annual turnover is less than Rupees five crores will be eligible for this class of membership.
	(i)	Affiliate Members: Shall be such other persons as are directly engaged in the promotion of science and art of making, shaping and treating of metals and alloys for a period of not less than 10 years who, in the opinion of the Council are qualified for membership; AND Any person who is not eligible for Membership of the Institute in any other way, but whose association with the Institute will in the view of the Committee be useful to the Institute may be elected as an Affiliate Member.
	(j)	Fellows: (omitted w.e.f 1.8.2000)
	(k)	Life Fellows: A candidate for admission to the class of Life Fellows shall have made contribution(s) in the field of Metallurgy of significance admitted by the Council of the Institute with reference to each individual case; AND Shall be not less than 40 years of age with 15 years standing as Member/Life Member and relaxable by the Council only in case of those with exceptional and outstanding contribution in the field of Metallurgy.
	(l)	Overseas Members: shall be individuals eligible to become members residing abroad.
	(m)	Life Associate Members : An Associate Member can become a Life Associate Member by paying the prescribed fees.
	(n)	Student Affiliate Members : Shall be a Member of a Student Affiliate Chapter of the Institute.

- Notes: 1. Please attach attested copies of Mark Sheets/Certificates wherever necessary.
2. Payment should be made by DD favouring 'The Indian Institute of Metals, Kolkata.'
For further details, please contact the IIM Head Office at Kolkata.

ELECTION:

- | | |
|-----|--|
| (a) | Application for membership shall be submitted on prescribed forms for the approval of the Council. |
| (b) | Persons should be duly proposed for membership on prescribed forms by at least three members of the Institute of good standing. The Council shall have the right to reject any application for membership without assigning any reasons. Non-election shall not necessarily prejudice the candidate concerned, in any future application for election. |

MEMBERSHIP DUES (Accounting Year 1st April to 31st March) :

- | | |
|-----|--|
| (a) | The annual subscription for Membership shall be Rs. 450/-. |
| (b) | Members shall pay an admission fee of Rs. 300/-. |
| (c) | Associate Members shall pay an annual subscription of Rs. 350/- and admission fee of Rs. 250/-. |
| (d) | Student Members including College Students studying metallurgy shall each pay an annual subscription of Rs. 200/- and an admission fee of Rs. 75/-. |
| | Note: Student member other than College students studying metallurgy are required to pay registration fees Rs. 150/- and 3 (three) years subscription in advance at the time of enrolment, besides the admission fee of Rs 75/- viz total Rs 825/-. If any candidate does not appear at the AMIIM Examination within the specified period of 18 (eighteen) months, not only he/she will loose his / her candidature but also the advance subscription paid by him / her. |
| (e) | Sustaining Members shall pay an annual subscription of Rs. 10,000/- provided that the Sustaining Members falling in the Small Scale Sector pay an annual subscription of Rs. 6000/-. |
| (f) | A candidate is eligible to become Life Fellow on paying Rs 7000/- as subscription and an admission fee of Rs 400/- (subject to fulfillment of other criteria) |
| (g) | (i) Subscription shall be payable along with the application on election and subsequently advance annually and shall be due in the month of April in each year. |
| | (ii) A member of thirty three years standing who has discharged all his dues to the Institute shall automatically become a life member. |
| (h) | A member can become a life member on paying a subscription of Rs. 6000/- in a single installment or Rs 3200/- each in two installments, within the same financial year, while a member of 15 years standing can become a life member on paying a subscription of Rs. 4500/- in single installment or Rs 2400/- each in two installments, within the same financial year. A candidate eligible to become a member can also become Life Member on paying Rs 6000/- towards subscription and an admission fee of Rs 300/-. A Life Associate Member, if eligible, may transfer to the class of Life Membership by paying a subscription of Rs. 3000/- in a single installment or Rs. 3,200/- in two installments of Rs. 1,600/- each within the same financial year. |
| (i) | The minimum subscription for becoming a Patron Member will be Rs. 2,50,000/- payable in one installment (or six annual installments of Rs. 45,000/- each). |
| (j) | The minimum subscription for Donor Members will be Rs. 1,25,000/- payable in one installment (or six annual installments of Rs. 22,500/- each). |
| (k) | Affiliate Members shall pay an annual subscription of Rs. 650/- and an admission fee of Rs. 400/-. |
| (l) | An Associate Member can become a Life Associate Member by paying subscription of Rs 3,000/- in a single installment or Rs 3,200/- in four installments of Rs 800/- each, within the same financial year. |
| (m) | A Student Affiliate Member shall not pay any Admission Fees and Subscription. |

“Provided that only half the amount of Annual Fee shall be payable for the first year by a person admitted on or after the first October of that year in the case of Members, Associate Members, Affiliate Members and Overseas Members.”

“Provided further that a Member/Associate Member/Affiliate Member/ Overseas Member who is of the age of 55 years or above and is not in any gainful employment or in practice, shall pay half the annual subscription relating to his/her class of Membership.” A member means Ordinary / Associate member.

ABBREVIATION:

The authorised abbreviation indicating the class of membership of the members of the Institute shall be as follows:

- | | |
|---------------------|-----------------|
| 1. Member | M.I.I.M. |
| 2. Associate Member | A.M.I.I.M. |
| 3. Life Member | M.I.I.M.(Life.) |
| 4. Hon. Member | M.I.I.M(Hon) |
| 5. Life Fellow | F.I.I.M (Life) |

Chat Speak

Researchers Zhili Feng, Alan Frederic, and Stan David of ORNL have made significant progress in a new metal processing technique, called friction-stir extrusion. They have produced a solid wire of Mg-Al alloy from machined chips, eliminating the energy and labor intensive processes of melting and casting. The new approach provides an opportunity to efficiently produce highly engineered structural, functional materials and a variety of bulk nanomaterials like Oxide Dispersion strengthened Steel alloys.

**We thank Prof. T.S. Sudarshan, Materials Modification Inc., USA who shared this info with us.*

Chapter Awards—2011

Young Researcher Category

- Detection of algae and bacterial biofilms formed on titanium surfaces using micro-Raman analysis, S. Ramya, R.P. George, R.V. Subba Rao and R.K. Dayal, Applied Surf. Sci., 256 (2010) 5108-5115
- An anomalous cyclic stress evolution in reduced activation ferritic/martensitic steel
G.V. Prasad Reddy, R. Sandhya, K. Laha and M.D. Mathew, Mater. Sci. Eng. A 527 (2010) 6449-6453

General Category

- In situ characterization of fatigue damage evolution in a cast Al alloy via nonlinear ultrasonic measurements
Anish Kumar, C.J. Torbet, T.M. Pollock and J. W. Jones, Acta Mater., 58 (2010) 2143-2154
- On the anomalous temperature dependency of fatigue crack growth of SS 316(N) weld
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Please write to us with your valuable suggestions and enquiries about the activities of the IIM Kalpakkam Chapter. We would be most happy to reply.

Editorial

New editorial team wishes an exciting and fulfilling year for all the readers. As we are aware, rapid changes are occurring in the field of Materials Engineering specific to modelling and simulation, in an attempt to offer innovative solutions to the industries that are aiming high productivity. It is based on basic physics of materials covering a spectrum from inter-atomic potentials to macro-structure. This advancement is expected to revolutionize the synthesis and manufacturing processes enabling tailored molecular configurations. Such innovative technologies require breaking down the boundaries between science and engineering to integrate all knowledge. In this context, editors would like to invite all the professionals and practitioners of the soft sciences and materials to consider the e-newsletter "Materials Matter", as a knowledge sharing open platform. We take this opportunity to appeal to all the members of IIM Kalpakkam chapter to share their innovative ideas and excitements in the field of Materials Science and Engineering with the readers.



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