Seetharaman – Seminar 14 – 15 June 2010 in Sweden

Materials processing towards properties

INVITATION

PROGRAMME

Sigtunahöjdens Hotel och Konferens (Conference Centre)
Hertigvägen 7, SE-192 35 Sigtuna, Sweden
Dear colleagues,

You are hereby invited to attend the Seetharaman – Seminar entitled "Materials processing towards properties", which will be held June 14 – 15 June, 2010 in Sweden. The seminar is devoted to the long and successful scientific work of Professor Seshadri Seetharaman.

He was appointed as a Professor in Theoretical Metallurgy at the Royal Institute of Technology (KTH) in Stockholm in 1989. During two decades he has built up a world class laboratory as well as reputation in the field of metallurgy. In addition, he has been a devoted teacher, which has resulted that he one time was selected as the KTH teacher of the year by the students.

To this seminar his colleagues, old students and friends all over the world, were invited to present a paper. The interest was overwhelming and the Organising Committee had a very difficult task to select which contributions that could be presented as papers and posters at the conferences. In total, approximately 70 scientific oral papers and 30 posters will be presented by lecturers from 25 countries from all over the world. In addition, most of the authors represent persons with whom Professor Seetharaman has collaborated during his career. Seldom has such a prominent group of metallurgical expertise been gathered at the same time in Sweden.

We would have been very happy to see as many participants as possible, but for practical reasons, we are forced to restrict the participation mainly to the lecturers. However a limited number of other participants can be welcomed, so register as soon as possible.

We hope that the Nordic light summer will be at its best, so that you are able to enjoy your visit in Sweden.

Pär Jönsson,
Chairman of the Organising Committee
GENERAL INFORMATION

Dates

Monday 14 and Tuesday 15 June 2010

Venue

Sigtunahöjden Hotel och Konferens (Conference Centre)
Address: Hertigvägen 7, SE-192 35 Sigtuna, Sweden
Phone: +46 8 592 577 00
Fax: +46 8 592 577 570
E-mail kontakt@sigtunahojden.se
Web: www.sigtunahojden.se

Registration

You can register by sending the enclosed form, by e-mail to sven.sundberg@jernkontoret.se

The registration must be made latest 20 April 2010.
Note: All lectures must register and pay the fee.

Due to the limited space, later incoming registrations could only be accepted if space is available

Fee

The fee is 4 000 SEK + VAT 810 SEK = 4 810 SEK (app. 480 EUR)
Note! The fee includes
* participation in the seminar,
* proceedings,
* hotel accommodation for one night,
* all meals.

Your registration will be confirmed within two weeks.

The fee shall be paid directly to the Conference Centre during the seminar.
We prefer that you pay with credit cards. All major credit cards, except Diners, are accepted.
(In exceptional cases, the Centre can also send you an invoice after the conference. Please, state on the registration form, the name and address, if not your own, to which the invoice shall be sent)

For participants coming from member companies of Jernkontoret and related institutes, special rules are applied. They are described on the last page

Special meals

If you have any special dietary requirements, please indicate this on the registration form
Transportation to Sigtunahöjden

From Stockholm-Arlanda Airport,
We recommend to use the taxi company “Taxi 020” to Sigtunahöjden.
The price will be 280 SEK (approx. 25 EUR).
Ask the taxi host (yellow jacket) outside the Terminal, to give you a “Taxi 020” car.

From central Stockholm
From main railway station (Centralen) there are commuter trains every 20 min to Märsta Station
(35 min journey), from where bus No 575 leaves to Sigtuna (25 min journey).
Bus stop name: Målargården

The central part of Stockholm is situated about 50 km south of the Conference Centre

Further accommodation

Note that accommodation for the one night Monday 14/Tuesday 15, is automatically booked by your
registration and the price is included in the fee.
If you need accommodation for further nights at the Conference Centre, you had to book it yourself by
contacting the Conference Centre (contact information above).
The cost for additional nights in single room at the Conference Centre is 1664 SEK (VAT included)
(approx. 165 EUR)

If you want to stay in Stockholm before or after the seminar, we kindly ask you also to book the hotels
yourself. (We draw the attention that after the seminar it can be difficult to get hotel rooms in Stockholm
due to the wedding of Crown Princess Victoria on 19 June.)

Language

The official language of the conference will be English.
No interpretation will be provided.

Proceeding and abstracts

The full text of all papers will be published on a CD and distributed to the delegates at the arrival to the
seminar.

Paper copies of the Abstracts will also be handed over to the participants at the seminar.

Organising Committee

Pär Jönsson, Chairman, Professor, Royal Institute of Technology (KTH), Stockholm
Li Dong Teng, Dr, Royal Institute of Technology (KTH), Stockholm,
Ragnhild Aune, Professor, Norwegian University of Science and Technology (NTNU), Trondheim/
Royal Institute of Technology (KTH), Stockholm
Taishi Matsushita, Ass Professor, Royal Institute of Technology (KTH), Stockholm
Du Sichen, Professor, Royal Institute of Technology (KTH), Stockholm
Sven Sundberg, General Secretary, Research Manager emeritus, Jernkontoret, Stockholm
International Advisory Committee

Prof A Cramb, US  Prof M Gaune-Escard, FR  Prof A A El-Geassy, EG
Prof S Sridhar, US  Dr J Lehman, FR  Prof M Zinigrad, IL
Prof A McLean, CA  Prof P Scheller, DE  Prof H Eric, ZA
Prof K Coley, CA  Prof H J Fecht, DE  Prof K P Abraham, IN
Dr R Morales, MX  Prof A Passerone, IT  Prof A K Lahiri, IN
Prof V Seshadri, BR  Prof L Kolbeinsen, NO  Prof J Zhang, CN
Prof J Madias, AR  Prof L Holappa, FI  Prof K C Chou, CN
Prof M Sanchez, CL  Dr J Karvan-Baczewska, PL  Prof H G Lee, KR
Prof K C Mills, GB  Prof I Ivanchev, BG  Prof M Iwase, JP
Prof R Boom, NL  Dr R Paunova, BG  Prof K Nagata, JP
  Prof O Ostrovski, AU

Accompanying persons

No special program is foreseen for accompanying persons. They are however invited to join the Gala Dinner. The fee for this is 700 SEK (VAT included). (appr 65 EUR) food and drinks included.

Twin bed rooms are also available at the Conference Centre. The additional cost for this is 405 SEK (VAT included) (appr. 40 EUR) for one night. Accompanying persons must be registered on the delegate's registration form.

Information about Stockholm and Sigtuna can be found on their official web sites:

Sigtuna:  http://en.sigtunaturism.se/
The Conference Centre:  http://www.sigtunahojden.se/

Contact Information

Sven Sundberg, General Secretary, Research Manager Emeritus
Kopparvägen 44
SE-187 44 TÄBY, Sweden
Phone: +46 70 640 52 89
E-mail: sven.sundberg@jernkontoret.se
Information to participants coming from member companies of Jernkontoret and related institutes.

Deltagare från Jernkontorets medlemsföretag samt närstående institut, högskolor och universitet

Deltagaravgift

Förhandsintresset för detta seminarium har varit oväntat stort. Detta innebär bl.a. att största delen av Sigtunahöjdens hotellrum är bokade för föreläsarna.

Vi är därför tvungna att be de deltagare, som kommer från Jernkontorets medlemsföretag, närstående institut, högskolor och universitet, att själva boka hotellrum i Sigtuna med omnejd eller i Stockholm. (Sök t.ex. på Google "Sigtuna hotell", så hittar ni lite längre ner på sidan, en bra förteckning under 'Resultat för lokala företag för hotell nära Sigtuna'.)

Det finns även möjligheter att anmäla sig till endast en av dagarna.

Deltagaravgifterna är i dessa fall följande:

Deltagande huvud dagar samt middag: 2 800 kr + 700 kr moms = 3 500 kr
Deltagande en dag samt middag: 2 500 kr + 625 kr moms = 3 125 kr
Deltagande en dag utan middag: 1 800 kr + 450 kr moms = 2 250 kr

I alla dessa avgifter ingår:
* deltagande i seminariet
* proceedings
* lunch och kaffe
samt middag i de två första alternativen, men alltså inte logi

Avgifterna skall betalas till Sigtunahöjdens under seminariet.
Se anvisningar ovan under Fee

De som använder sig av detta alternativ omedels kryssa för nederst på anmälningsblanketten

Ifall, mot förmodan, det skulle bli rum lediga på Sigtunahöjdens meddelar vi er om detta.

Vi ber om ursäkt för de olägenheter dessa arrangemang förorsakar er
Seetharaman – Seminar 14 – 15 June 2010 in Sweden

Materials processing towards properties

Welcome to Sigtuna

Sigtunahöjden Hotel och Konferens (Conference Centre)
Hertigvagen 7, SE-192 35 Sigtuna, Sweden
REGISTRATION FORM

To be sent to: sven.sundberg@jemkontoret.se latest 20 April

Title: ..................

Last Name: .................................................
(the one you use in connection with your title)

First name: ..................

E-mail address: .............................................

Mobile phone number: ..................................
Other phone numbers: ..................................

Employer: ..................................................
(University/Institute/Company or similar)

Employers full address:
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Accommodation:
The night between 14 and 15 June at the Conference Centre will automatically be booked by this registration.
Note! Reservations for other nights must be booked by the participant themselves

Arriving date and time to the Conference Centre: ..............................................

Special dietary requirements: .................................................................
(such as vegetarian, lactose intolerance etc.)

Accompanying person's name: .................................................................
(a twin bed room for the night between 14 and 15 June will then automatically be booked)

☐ I want an invoice to be sent after the conference
It shall be sent to the address above. If it shall be sent to an other name and address, write it here.
..........................................................
..........................................................

☐ I do not need accommodation for the night between Monday 14 and Tuesday 15 June

This registration form can also be sent by ordinary mail to:
Sven Sundberg, Kopparvägen 44, SE – 187 44 TÄBY, Sweden
Seetharaman – Seminar 14 – 15 June 2010 in Sweden

Materials processing towards properties

Programme

Monday 14 June 2010

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<td>09.00</td>
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</table>
| 10.00 | Welcome and Introduction  
   Jönsson Pär, Prof.  
   Royal Institute of Technology, Stockholm, Sweden |
| 10.10 | Honorary lessons:  
   The work of Prof Seetharaman  
   * Lahiri, A. K. Prof.  
   Indian Institute of Science, Bangalore, India  
   * Jönsson Pär, Prof.  
   Royal Institute of Technology, Stockholm, Sweden |
| 10.50 | Engineering research across disciplinary boundaries  
   Suresh Subra Prof.  
   Massachusetts Institute of Technology, Cambridge, USA |
| 11.20 | Importance of education at the Royal Institute for Technology (KTH) for the Industry  
   Nilsson Elisabeth, President  
   Jernkontoret, Stockholm, Sweden |
| 11.50 | The metallurgical development at Sandvik Materials Technology  
   and its dependence of fundamental research  
   Wijk Olof, Prof. Executive Vice President and  
   Head of R&D  
   Sandvik Materials Technology, Sandviken, Sweden |
<p>| 12.20 | Lunch |</p>
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<tr>
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<th>Session 4</th>
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<tr>
<td>13.30</td>
<td>A 1 Ab-initio predictions of interfacial heat flows during the high speed casting of liquid metals in near net shape casting operations. Guthrie, R. Prof. et al. McGill University, Montreal, Canada</td>
<td>B 1 Calculation of activation energy in multiphase reactions Chou, Kuo-Chih Prof. University of Science and Technology Beijing, China</td>
<td>G 1 Modelling ironmaking and steelmaking: collaboration with academia boosts process control in industry Boom, Rob Prof. Corus Research, Ijmuiden, The Netherlands</td>
<td>E 1 Wastes as resources: an update on recovery of valuable metals from copper slags Sanchez, Mario Prof Universidad de Concepcion, Chile</td>
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<tr>
<td>14.00</td>
<td>B 2 Physical and crystal chemistry of leaching of sodium and iron ions from alkali roasted ilmenite Jha, Animesh Prof University of Leeds, United Kingdom</td>
<td>G 2 On physico-chemical and technical limits in clean steel production Holappa, Lauri Prof. Aalto University, Espoo, Finland</td>
<td>E 2 Need for fundamental measurements to develop environmental performance of metallurgical processes. Björkman, Bo Prof. Luleå Technical University, Sweden</td>
<td></td>
</tr>
<tr>
<td>14.30</td>
<td>A 3 Phase equilibria and viscosities in ferrochromium smelting slags Jak, Eugene Prof. et al. University of Queensland, Brisbane, Australia</td>
<td>B 3 Ru solubility and dissolution behavior in molten silicate Morita, Kazuki Prof. et al. The University of Tokyo, Japan</td>
<td>G 3 Improved quality by inclusion analysis Fruhan, R.J. Prof et al. Carnegie Mellon University, Pittsburgh, USA</td>
<td>E 3 A thermodynamic strategy for reducing CO2 emission in ironmaking processes. Iwase, R Prof. et al. Kyoto University, Japan</td>
</tr>
<tr>
<td>15.00</td>
<td>A 4 Fundamental researches on the high-speed and high-efficiency steelmaking reaction Kitanuma, Shin-ya Prof. Tohoku University, Japan</td>
<td>B 4 Comparison of the electric conduction mechanism in MnOx-CaO-SiO2 and FeOx-CaO-SiO2 slag systems Coley, Kenneth Prof. et al. McMaster University, Ontario, Canada</td>
<td>G 4 Mechanical Metallurgy: is there a relationship between ancient sword making and modern nanotechnology? Facht, Hans Prof. University of Ulm, Germany</td>
<td>E 4 Towards a carbon neutral steel industry Jahanarahi, Sharif Dr. et al. CSIRO, Victoria, Australia</td>
</tr>
<tr>
<td>15.30</td>
<td>Coffee</td>
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</table>
Monday 14 June 2010 (cont)

Session 2 (cont)
A. Thermodynamic studies of high temperature systems and reactions (cont)

16.00 A 5 Chlorination and evaporation behaviors of zinc and lead at chlorinating and oxidizing atmosphere
Torikoshi, Fujimoto Prof. et al.
The University of Tokyo, Japan

B 5 Titanium carbide-silicon nitride reactions at high temperatures
Egen, F Uebrun Prof. et al.
University of the Witwatersrand, Johannesburg, South Africa

Session 3 (cont)
B. Kinetic studies of multiphase reactions (cont)

G 6 Lanthanide-based halide systems: a fascinating route from data acquisition to data prediction
Gagne-Escaud, Marcelle Prof. et al.
Ecole Polytechnique, Marseille, France

Session 4 (cont)
G. General and overview topics (cont)

Session 5 (cont)
E. Environmental studies of metallurgical processes (cont)

16.30 A 6 Physico-chemical properties of high alumina blast furnace slag
Lalitha, A. K. Prof. et al.
Indian Institute of Science, Bangalore, India

B 6 Synthesis and characterization of nanostructured molybdenum-iron alloys by gas-solid reactions
El-Ghassy, Abdel-Hady A., Prof. et al.
Central Metallurgical Research & Development Institute, Cairo, Egypt

17.00 A 7 Surface oxidation of steel powders
Grinder, Olof Doc.
Royal Institute of Technology, Stockholm, Sweden

B 7 The influence of molten powder properties on shell formation in continuous casting of steels
Dacker, Carin-Ake et al.
Swerea KIMAB, Stockholm, Sweden

E 6 Productivity increase of high temperature metal production through optimization of melting behavior of recycled slag
Kongoli, F Dr. et al.
FLOGEN Technologies, Montreal, Canada

E 7 Research for using iron & steelmaking zinc laden dust to desulfurize hot metal
Kumar, R Vasant Prof. et al.
University of Cambridge, United Kingdom

19.15 Cocktail
19.00 Gala Dinner
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<td>9:00</td>
<td>A 8 Importance of modelling in estimation of properties of refining slags</td>
<td>B 8 Product morphologies and reaction mechanisms on gaseous reduction of metal oxides</td>
<td>C 1 Interaction parameters in metallic solutions estimated from liquid structure and the heat of solution data at infinite dilution</td>
</tr>
<tr>
<td></td>
<td>Matsumiya, Tooru Dr. Nippon Steel Corporation, Futsu, Japan</td>
<td>Hayes, P. C. Prof. et al. The University of Queensland, Brisbane, Australia</td>
<td>Waseda, Yoshio Prof. Tohoku University, Sendai, Japan</td>
</tr>
<tr>
<td>9:30</td>
<td>A 9 Carbon transfer in the lower zone of a blast furnace</td>
<td>B 9 Reduction and carbonization of iron oxide by carbonaceous materials</td>
<td>C 2 An analysis of recirculatory flow in gas-stirred ladles</td>
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<td></td>
<td>Monaghan, Brian J. Dr. et al. University of Wollongong, Australia</td>
<td>Hiro, Mitsutaka Prof. et al. Hokkaido Polytechnic College, Japan</td>
<td>Irons, Gordon Prof. et al. McMaster University, Ontario, Canada</td>
</tr>
<tr>
<td>10:00</td>
<td>A 10 Study of the melt-down mechanism of the blast furnace burden</td>
<td>B 10 Interfacial phenomena in high temperature processes</td>
<td>C 3 Mass exchange at the metal-slag interface in the continuous casting process</td>
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<td>Shatokha, Volodymyr, Prof. et al. National Metallurgical Academy of Ukraine, Dnipropetrovsk, Ukraine</td>
<td>Häkki, Jouko Prof. et al. University of Oulu, Finland</td>
<td>Scheller, Pior Prof. Freiberg University of Mining and Technology, Germany</td>
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<td>10:30</td>
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<tr>
<td>11:00</td>
<td>A 11 Thermodynamic properties and vaporization processes of ternary silicate systems studied by high temperature mass spectrometry</td>
<td>B 11 Nano grained materials produced by co-precipitation and gas reduction methods for electronic applications</td>
<td>C 4 Computational fluid dynamics modeling of nanopowder production by chemical vapor synthesis process</td>
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<td>Stolyarova, Valentina Prof. Saint Petersburg State University, Russia</td>
<td>Agarwala, Vijaya Prof. et al. Indian Institute of Technology Roorkee, India</td>
<td>Sohn, H. Y. Prof. et al. University of Utah, Salt Lake City, USA</td>
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<td>11:30</td>
<td>A 12 Direct-to-blisters smelting of copper concentrates: The fluxing chemistry</td>
<td>B 12 Modeling of DRI processes with two simultaneously active reducing gases</td>
<td>C 5 Magic mould flux for continuous casting to further reduce radiative heat transfer</td>
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<td>Taskinen, Pelka Prof. Aalto University, Espoo, Finland</td>
<td>Kolbeinsen, Leiv Prof. Norwegian University of Science and Technology, Trondheim, Norway</td>
<td>Susa, Masahiro Prof. et al. Tokyo Institute of Technology, Japan</td>
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<tr>
<td>12:00</td>
<td></td>
<td>B 13 Experimental and numerical study on interaction between top blown jet and liquid bath</td>
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<td>Asahara, Norifumi et al. Nippon Steel Corporation, Fukuoka, Japan</td>
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<tr>
<td>12:30</td>
<td>Lunch</td>
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**Tuesday 15 June 2010 (cont)**

### Session 9
**D. Thermophysical properties of high temperature systems**

| 13.30 | D 1 Carbothermal solid state reduction of stable metal oxides  
        Ostrovsky, Oleg Prof. et al.  
        University of New South Wales, Australia |
|-------|--------------------------------------------------------------------------------------------------|

### Session 10
**B. Kinetic studies of multiphase reactions (cont)**

| 13.30 | B 14 Surface structure of wustite observed using STM  
        Nagata, Kazuhiro Prof. et al.  
        Tokyo Institute of Technology, Japan |
|-------|--------------------------------------------------------------------------------------------------|

### Session 11
**E. Environmental studies of metallurgical processes (cont)**

| 14.00 | E 8 Spinel synthesis from aluminum dross  
        Zhang, Mei Prof. et al.  
        University of Science and Technology Beijing, China |
|-------|--------------------------------------------------------------------------------------------------|

**F. Optimisation of processes towards targeted properties**

| 14.00 | F 1 The influence of metallurgical chemistry on the development of steel quality  
        McLean, Alexander Prof. et al.  
        The University of Toronto, Canada |
|-------|--------------------------------------------------------------------------------------------------|

| 14.30 | D 3 Noncontact modulation laser calorimetry for high-temperature metallic melts  
        Fukuyama, Hiroaki Prof. et al.  
        Tohoku University, Sendai, Japan |
|-------|--------------------------------------------------------------------------------------------------|

| 15.00 | B 16 Partial slag solidification within an ilmenite smaller  
        Pistorius, Petrus C Prof. et al.  
        Carnegie Mellon University, Pittsburg, USA |
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### Coffee

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| 16.00 | F 2 The role of mould fluxes in the continuous casting of steel  
        Mills, Kenneth Prof.  
        Imperial College, London, United Kingdom |
|-------|--------------------------------------------------------------------------------------------------|

| 16.00 | D 4 Composition dependence of ultrasonic velocities of molten alkaol silicates  
        Hayashi, Prof. M.  
        Tokyo Institute of Technology, Japan |
|-------|--------------------------------------------------------------------------------------------------|

| 16.00 | B 17 Influence of oxygen on the surface tension of metals and alloys: experiments and modelling  
        Ricci, Ermica Dr  
        Institute for Energetics and Interfaces CNR, Genova, Italy |
|-------|--------------------------------------------------------------------------------------------------|

| 16.00 | F 3 Inauguration of IRIS, Institute of Research of Iron & Steel, for Sha steel in P R China  
        Eru, Teeshikko Prof.  
        Institute of Research of Iron & Steel, Zhangjiagang, China |
|-------|--------------------------------------------------------------------------------------------------|
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<tr>
<td>16.30</td>
<td><strong>D 5 Mold flux design based on physicochemistry</strong></td>
<td><strong>B 16 Surface properties of alloys and ionic mixtures</strong></td>
<td><strong>F 4 Development of ultra-high strength Cr,Mo,V steels through electro-slag refining and microstructural design</strong></td>
</tr>
<tr>
<td></td>
<td><em>Kawamoto, Maysuki Dr.</em></td>
<td><em>Tanaka, Toshihiro Prof.</em></td>
<td><em>Bhat, N.B. Prof.</em></td>
</tr>
<tr>
<td></td>
<td><em>Sumitomo Metal Industries, Tokio, Japan</em></td>
<td><em>Osaka University, Japan</em></td>
<td><em>IIT BOMBAY, Mumbai, India</em></td>
</tr>
<tr>
<td>18.30</td>
<td><strong>D 6 Wetting in metal-ceramic systems. The case of transition metals diborides</strong></td>
<td><strong>B 19 Phase transformation and intrinsic thermal expansion studies on some rare earth oxides with high temperature XRD and DSC techniques</strong></td>
<td><strong>F 5 Applications of thermodynamics to inclusions engineering in steel</strong></td>
</tr>
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<td></td>
<td><em>Passeron, Alberto Prof. et.al.</em></td>
<td><em>Zhang, Jiayun Prof. et.al.</em></td>
<td><em>Lee, Hae-Geon Prof.</em></td>
</tr>
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<td><em>IENI-CNR, Genova, Italy</em></td>
<td><em>University of Science &amp; Technology Beijing, China</em></td>
<td><em>Pohang University of Science and Technology (POSTECH), Pohang Korea</em></td>
</tr>
<tr>
<td>17.00</td>
<td><strong>D 7 A physical modelling study on inclusion removal in the tundish of a continuous casting machine</strong></td>
<td><strong>D 8 Thermal conductivity of slags and refractory materials</strong></td>
<td><strong>F 6 Prediction of properties of metals relevant to process simulation.</strong></td>
</tr>
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<td></td>
<td><em>Seshadri, Varadagiri Prof. et.al.</em></td>
<td><em>Sun, Shouyi Dr.</em></td>
<td><em>Quested, Peter Dr. et.al.</em></td>
</tr>
<tr>
<td></td>
<td><em>Universidade Federal de Minas Gerais, Brazil</em></td>
<td><em>CSIRO Process Science and Engineering, Victoria, Australia</em></td>
<td><em>National Physical Laboratory, Teddington, United Kingdom</em></td>
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**17.30** The end