Final Program - MCHTSE 2016

Sunday 25.9.
17:00 – 19:00 Registration

Monday 26.9.
8:00 – 13:00 Registration

Opening Ceremony
9:00 – 9:30 Welcome address
Conference chairman and president of SSHT, V. Leskovšek
IFHTSE president, P. Jacquot
Head of research in Metal Ravne, B. Urmaut
Head of toolmaking in Gorenje, B. Nardin

Keynote lectures (Chairman: V. Leskovšek)
9:30 – 10:15 Keynote lecture: Advanced heat treatment processes and distortion - a competition between productivity and parts performance
H.W. Zoch (IWT Bremen, Germany)
10:15: 10:50 Invited talk – Heat Treatment: Fracture toughness measurement and heat treatment optimization in 300M aeronautic steel
L. Canale (University of São Paulo, Brazil)

10:50 – 11:10 Coffee Break

Session 1 – Heat Treatment (T. Babul)
11:10 – 11:30: About austenite reversion during heat treatment of 13%Cr-4%Ni martensitic stainless steel, M. Pellizzari
11:50 – 12:10: A new method of heat treatment leading to produce steel with strength of over 2 GPa and high ductility, W. Swiatnicki
12:30 – 12:50: Influence of the heat treatment processes on the properties of high entropy alloys based on Al-Cr-Fe-Mn-Ni system, D. Mitrica

Session 2 – Surface Engineering (Z. Kolozsvary)
11:10 - 11:30: Energy and media efficient nitriding and nitrocarburizing, H. Klümper-Westkamp
11:30 – 11:50: Characterization of a plasma nitrocarburized Fe-31.2Mn-7.5Al-1.3Si-0.9C steel alloy, G.S. Takeya
11:50 - 12:10 Heat treatment of nitrided layers, P. Wach
12:10 – 12:30: Research on morphology of boride layers obtained on C45 steel, S. Kladaric
12:30 – 12:50: Surface engineering of electro-centrifugal pump stages by liquid boriding, V.N. Skorobogatykh
12:50 – 13:10: Effect of thermal oxidation temperature on the corrosion behavior of Ti6Al4V alloys for dental application, A. Boucheham

13:10 – 14:30 Lunch
14:30 – 17:30 Postojna Cave
18:30 – 21:30 Zemono (dinner)
**Tuesday 27.9.**
8:00 – 18:00 Registration

*Invited talks (B. Smoljan)*
9:00 – 9:35 Invited talk – Surface Engineering: Modern tool coatings and aspects seldom utilized
  U. Wiklund (Uppsala University, Sweden)
9:35: 10:10 Invited talk – Modelling: Modelling Surface Engineering Processes in Steels
  D. Cote (Worcester Polytechnic Institute, USA)

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<thead>
<tr>
<th>Session 3 – Heat Treatment (M. Pellizzari)</th>
<th>Session 4 – Surface Engineering (P. Jacquot)</th>
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<tr>
<td>10:30 – 10:50: Comparative measurement and evaluation of the quenching intensity of a petroleum oil and canola oil based on temperature gradients, G.E. Totten</td>
<td>10:30 – 10:50: Wear resistance of multilayer PACVD coatings TiN/TiBN applied on cold work tool steels, D. Landek</td>
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<td>10:50 – 11:10 Coffee Break</td>
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<td>11:10 – 11:30: On the influence of cryogenic steps in heat treatment processes, L.A. Alava</td>
<td>11:10 – 11:30: The role of nodular defects in magnetron sputtered hard coatings in tribological contact, A. Drnovšek</td>
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<td>11:50 – 12:10: The influence of the tempering temperature on the structure and properties of the X153CrMoV12 steel subjected to deep cryogenic treatment, A. Ciski</td>
<td>11:50 – 12:10: Influence of shape and surface texturing sequence on tribological properties of coated steel, M. Sedlaček</td>
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<td>13:10 – 14:30 Lunch</td>
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<td>Session 5 – Heat treatment (L. Canale)</td>
<td>Session 6 – Surface Engineering (U. Wiklund)</td>
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<td>14:30 – 14:50: Application of ultrasound stirring for quenching in a liquid medium, D. Landek</td>
<td>14:30 – 14:50: Cu-C composite coatings, T. Babul</td>
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<th>Session 7 – Modelling (D.S. MacKenzie)</th>
<th>Session 8 – Characterization (D. Ugues)</th>
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<td>16:10 – 16:30: Hardenability modelling - a review of mathematical tools, W. Sitek</td>
<td>16:10 – 16:30: Microstructure and hardness investigation on high entropy alloy matrix composite material reinforced with graphite particles, M. Matara</td>
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17:00 – 19:00 Poster Session

19:30 – 22:00 Gala Dinner
**Wednesday 28.9.**
8:00 – 11:00 Registration

**Invited talks (B. Podgornik)**
9:00 – 9:35 Invited talk – Characterization: Characterisation of microstructure and mechanical properties of tool steels: from laboratory tests to industrial trials
D. Ugues (Politecnico di Torino, Italy)

9:35: 10:10 Invited talk – Applications: Application of surface engineering techniques in practice
O. Massler (DeMartin, Switzerland)

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<th>Session 9 – Characterization (M. Jenko)</th>
<th>Session 10 – Applications (O. Massler)</th>
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<tr>
<td>10:10 – 10:30: Optimized tool materials to increase life time for fine blanking processes of stainless sheet, <strong>M. Demmler</strong></td>
<td>10:10 – 10:30: New technological perspectives of hot forming processes: Expanding heat treatment strategies for high thermal conductivity tool steels, <strong>I. Valls</strong></td>
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<td>10:50 – 11:10 Coffee Break</td>
<td>10:50 – 11:10 Coffee Break</td>
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<td>11:30 – 11:50: Characterization of nanometric-sized participates formed during heat treatment of aluminium alloy, <strong>K. Matus</strong></td>
<td>11:30 – 11:50: <strong>IVA Schmetz</strong>; Advanced hot-zone and cooling gas stream design in vacuum furnaces for automotive applications, <strong>R. Stein</strong></td>
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<td>11:50 – 12:10: The kinetics of boride formation layers in pure niobium, <strong>F. Mariani</strong></td>
<td>11:50 – 12:10: <strong>Rübig</strong>; Younger nitriding methods on trial: Decision criteria for or against plasma or gas nitriding from a modern perspective, <strong>Keyan Liu</strong></td>
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<td>12:10 – 12:30: Invar thin film micro hole machining using photoresist etching and electrochemical machining, <strong>Woong-Kirl Choi</strong></td>
<td>12:10 – 12:30: <strong>Plasmaterm</strong>; Shared glow discharge in plasma nitriding/nitrocarburizinging, <strong>Z. Kolozsváry</strong></td>
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<td>12:30 – 12:50: A study on ultra precision electrochemical machining of invar sheet by micro pulse voltage control, <strong>Seong-Hyun Kim</strong></td>
<td>12:30 – 12:50: <strong>Ducom Instruments</strong>; High Temperature Erosion and Abrasion of Steels, <strong>D. Veeregowda</strong></td>
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13:00 – 13:30 Closure of the conference
V. Leskovsek, B. Smoljan, M. Pellizzari
1. **W. da Silva Mattos**: Uphill quenching of aluminum alloys: a process overview and project update
2. **R.L. Simencio Otero**: Vegetable oil quenchants with substantially improved thermal oxidative stability: a review and proposal
3. **L.M. Albano**: Development and use of a small laboratory intensive quenching (IQ) system and the successful use to quench AISI 5160 steel
4. **A. Leon**: The effect of stress relieving heat treatment on the corrosion resistance of aluminium alloy obtained by 3D printing technology (SLM)
5. **I. Matula**: Effect of porosity on microstructure and properties of Ti35Zr biomedical alloy fabricated by elemental powder metallurgy
6. **M. Jenko**: Surface modification of NiTi Shape Memory Alloy for application in Medicine
7. **P.V. Krot**: Modeling of phase transformations in the rolls of the special alloy steels during quenching and deep cryogenic treatment
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EXHIBITORS

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