Abhishek Tripathi

Date of Birth: October 23, 1987

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Education

- **Bachelor of Technology, Department of Materials and Metallurgical Engineering, Indian Institute of Technology Kanpur (Aug 2005- May 2009)**
- Passed All India senior School Certificate Examination (12^{th}) in 2004, (78.2%)
- Passed All India Secondary School Examination (10^{th}) in 2002, (85.8%)

Research Experience

University of South Australia, Adelaide, Australia ***(June 2009-April 2010)***
Position: Visiting International Research Student

Mentor: Dr. Krasimir Vasilev, Senior Lecturer, Mawson Institute, University of South Australia

- The project involved characterization of the surface chemical gradients made from plasma polymerization. The gradients are made in a unique plasma reactor
- Studied the growth of crystals on the surface chemical gradients
- Studied the dependence of pH on the wetability along the surface chemical gradients

Graz University of Technology, Graz, Austria ***(May-July 2008)***

Position: Summer Trainee

Mentor: Prof. Horst Cerjak, Head, Institute for Materials Science and Welding, TU Graz, Austria
Dr. Peter Mayr, Assistant Professor, Institute for Materials Science and Welding, TU Graz, Austria

- Studied the phase transformation during welding in the heat affected zone of 9Cr-3W-3Co steel **used for critical components of environment friendly power plants**
- Defined suitable parameters in the modern quenching dilatometer for different heating and cooling rates used in the simulation of weld thermal cycle on the 9Cr-3W-3Co steel samples and studied its effect on the grain size of the fine grained heat affected zone
- **Project was a part of European Cooperation in the field of Scientific and Technical Research (COST)**

Academic Projects

1. **Study of wear behavior under different load conditions and structure property correlation of the bainitic Micro alloyed steel** ***(Aug 2008-April 2009)***
   Mentor: Dr. Sandeep Sangal, Professor, Department of Materials and Metallurgical Engineering, IIT Kanpur

- The project involved giving suitable treatment (Soaking, Forging, Normalization and isothermal quenching) to the micro alloyed steels for obtaining bainitic phase and its micro structural characterization
- Study of the wear behavior of the samples under different loads using Reciprocating friction monitor machine

2. **Wheels and axles of improved technology under "Technology Mission for railway safety" sponsored by Ministry of Railways, Government of India at IIT Kanpur** ***(May-July 2007)***
   Mentor: Dr. Sandeep Sangal, Professor, Department of Materials and Metallurgical Engineering, IIT Kanpur

- Studied the mechanical properties (Hardness, Ductility, Toughness, Tensile strength)of the Micro alloyed steels after giving various heat treatments for obtaining optimum properties and better load efficiency with the current safety factors
- Studied the microstructures obtained after different heat treatments
- Calculated relative proportions of different phases present (Ferrite, Pearlite, Bainite) and interlamellar spacing (to determine their fineness)
- The budget of the whole project is around 20 million (INR)

3. **Manufacturing of Model of Mechanical crane (Selected as one of the best model)** ***(Aug-Nov 2006)***
Mentor: Dr. N V Reddy, Associate Professor, Department of Mechanical Engineering, IIT Kanpur

- Conceptualized the model of mechanical crane involving different gears (worm, spur and bevel)
- Involved machining processes like Lathe operation, Milling and Shaping, Drilling, Welding, Soldering, Metal working and Casting

Conferences

- Part of the organizing team of the **61st Annual Assembly of the International Institute of Welding (IIW)** and the **International Conference on "Safety and Reliability of welded components in Energy and Processing Industry"** held in Graz, Austria from 5th-12th July 2008

- Attended **METALLO-2007**, the International Conference on Metals and Alloys held at IIT Kanpur, India from 7th-10th December 2007

Relevant Courses

- Mechanical Behavior of Materials
- Modeling of Steel Making Processes
- Phase Transformations in Materials
- Materials Characterization
- Metallurgical Kinetics
- Display Materials and Technologies
- Iron and Steel making
- Fundamentals of Materials Processing
- Phase Equilibria in Materials
- Thermodynamics of Materials
- Electrochemical Technology in Materials Processing
- Electronic and Magnetic Properties of Materials

Scholastic Achievements

- Secured Percentile **99.3** in **IIT Joint Entrance Examination**-2005 [**Best in the 2005 batch of Department of Materials and Metallurgical Engineering, IIT Kanpur**]
- **Ranked 59th** in Uttar Pradesh State Engineering Entrance Examination-2005 (**Percentile 99.93**)
- Secured **All India Rank 1129** in All India Engineering Entrance Examination-2005 (**Percentile 99.67**)
- Qualified the Intelligence Aptitude and Scholastic test (IAS) conducted by the Indian Institute of Personality Development (IIPD)
- Awarded **Best Outgoing Student**, Sunbeam English School, 2002

Engineering and Technical Skills

Mechanical Properties of Materials: Wear Test, Tensile Test, Hardness Test (Vickers, Rockwell, Brinell), Creep Test, Impact Test, Fatigue Test

X ray Diffraction: EDX, Laue Method, Rotating Crystal Method, Debye-Scherrer Method

Microscopy: Optical Microscope, SEM, TEM, AFM

Softwares: Fluent, MS Office, Adobe Photoshop

Programming: C, JAVA

Operating System: Comfortable with Linux, Windows 9x/2000/XP/Vista