RUPAM TRIPATHI

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DOB: 05/07/1989

EDUCATION

PhD in Mechanical Engineering September 2021(AWARDED)

Indian Institute of Technology (Indian School of Mines),
Dhanbad-826004, Jharkhand

In collaboration with the Institute of Geonic (Czech Academy of Sciences), Ostrava, Czech Republic and Technical University of Kosice, Slovakia.

M. Tech Mechanical Engineering July 2013-July 2015
with specialization in Manufacturing
Indian Institute of Technology, Indian School of Mines,
Dhanbad-826004, Jharkhand
OGPA: 8.65

B. Tech Mechanical Engineering July 2007-July 2011
Uttar Pradesh Technical University, Lucknow, Uttar Pradesh
Percentage: 68.68%

Intermediate (12th) July 2005-July 2006
Stream: Mathematics, Physics, Chemistry, English, Hindi,
Canossa Girls Inter College, Faridi Nagar, Lucknow (UP Board)
Percentage: 66.67%

High School (10th) July 2003-July 2004
Stream: Mathematics, Science, Social Science, English, Hindi, Sanskrit,
Canossa Girls Inter College, Faridi Nagar, Lucknow (UP Board)
Percentage: 64.80%

THESIS DETAILS

PhD Thesis: Study of rock cutting by using Pulsating Water Jet Technology.

*The part of this research work conducted at the Institute of Geonics, Ostrava, Czech Republic (Czech Academy of Sciences) and Technical University of Kosice, Slovakia. (*1st visit*: From 18/03/2016 to 04/07/2016;* 2nd visit*: From 09/05/2017 to 02/08/2017; 28/09/2017 to 03/11/2017 and* 3rd visit*: 02/06/2018 to 02/09/2018 under ERASMUS + Scholarship).*

The traditional methods such as blasting and heavy impact hammers are predominantly used in coal mines to break the heavy and oversized rock, but these methods are bulky, time-consuming and introduce to undesirable cost. Also, these methods are unsafe not only from the point of view of the environment, but it also affects the working conditions of the operators. So, there is a need to stimulate an unconventional manufacturing technique that can overcome these problems. Among the unconventional methods, Pulsating water jet technology offers the solution to the problems faced by traditional methods. It offers several operational advantages such as low cutting forces, selective removal capability, dust free, no heat generation and environmentally friendly. Due to these unique characteristic water jet technologies has been used for rock erosion over the centuries. Presently Pulsating water jet being employed with industries to eliminate the adverse effects that attenuate the growth of industrialization. It is vital to adopt technique which are technologically and economically more viable. Previous study proved that the eroded region at low pressure. The eroded surface was quantified by the textural characteristics (Eroded depth, Eroded width, Eroded volume) and mechanical properties. The results showed significant changes in the textural properties. The microstructural (SEM and optical analysis) of the eroded region identifies the involve plastic phenomenon. This study can give better understanding of the phenomenon and proper selections of the parameters for erosion application using pulsed waterjet.

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M.Tech Thesis: Characterization, Feasibility Analysis, Mathematical Modelling and Optimization of Process Parameters of Friction Surfaced Coating of Ferrous and Non-Ferrous Alloys

This work was completed under the joint guidance of Prof. Pedro Vilaca (Aalto University, Finland and Dr. Somnath Chattopadhyay (IIT ISM Dhanbad).

In this work, successful friction surfaced coatings of mild steel over mild steel, mild steel over stainless steel (AISI 304) and stainless steel over stainless steel using a low-cost conventional milling machine were obtained. A Multi response optimization and empirical relationships of the operating parameters has been developedusing full factorial design technique. The coatings obtained were analyzed for their micro structural behavior using FESEM and Optical Microscopy. An infrared camera provided thermographs that elaborated the distinct stages of heat dissipation during the process of coating formation. The bond integrity and strength of the coating was analyzed by bend tests and Vickers micro hardness test. Additionally, feasibility test was also conducted on non-ferrous substrates (AA1050A, CP Copper as substrates and CP Copper and Stainless Steel (AISI 304) as consumable rods).

RESEARCH INTEREST

Friction surfacing, Water jet, Mechanical Properties, Surface Profiles, Material Characterization, Microstructures, Statistical Analysis.

PUBLICATION

International Journal

1. **Rupam Tripathi*,** Sergej Hloch, Somnath Chattopadhyaya, Dagmar Klichova, Jiří Ščučka, Influence Of Frequency Change During Sandstone Erosion By Pulsed Waterjet. Materials and manufacturing process.2019; doi.org/10.1080/10426914.2019.1669800. **(Q2, IF=3.7)**

2. **Rupam Tripathi*,** Sergej Hloch, Somnath Chattopadhyaya, Dagmar Klichova, Jiří Ščučka, Alok Kumar Das. Application of the pulsating and continous water jet for granite erosion. International journal of rock mechanics and minning sciences (2020) 126 104209 https://doi.org/10.1016/j.ijrmms.2020.104209. **(Q1, IF=4.15, RANKING OF THE JOURNAL=1)**

3. Madhulika Srivastava, Sergej Hloch, **Rupam Tripathi,** Drazan Kozak, Somnath Chattopadhyaya, Amit Rai Dixit, Josef Foldyna, Pavol Hvizdos, Martin Fides, Pavel Adamcik. Ultrasonically Generated Pulsed Water Jet Peening of Austenitic Stainless-Steel Surfaces. Journal of Manufacturing Processes. (ISSN: 1526-6125; Ref no. SMEJMP-D-17-01085R1) **(Q2, IF=4.08)**

4. Piush Raj, Sergej Hloch, Madhulika Srivastava, **Rupam Tripathi,** Dagmar Klichová, Jiří Klich, Monika Hromasová, Miroslav Muller, Linda Miloslav, Somnath Chattopadhyaya, Pavel Adamčík Sandstone erosion by continuous and pulsed water jets: effect of standoff distance. JOURNAL OF MANUFACTURING PROCESS. https://doi.org/10.1016/j.jmapro.2019.04.035. **(Q2, IF=4.08)**

5. Ravi Kumar, Somnath Chattopadhyaya, Aniruddha Ghosh, Grzegorz M. Krolczyk, Pedro Vilaca, Ratnesh Kumar, Madhulika Srivastava, Mohammad Shariq, **Rupam Tripathi.** CHARACTERIZATION OF FRICTION SURFACED COATINGS OF AISI 316 TOOL OVER HIGH-SPEED-STEEL SUBSTRATE; Transactions of FAMENA (Faculty of Mechanical Engineering and Naval Architecture) (2017). doi:10.21278/TOF.41206.(SCIE; IMPACT FACTOR-0.58, WoS) **(Q2, IF=.77)**

International Conference

1. **Rupam Tripathi**, Sergej Hloch, Madhulika Srivastava, Vivek Nigam, Somnath Chattopadhyaya, Alok Kumar Das. EXPERIMENTAL STUDY ON THE DEPTH OF CUT GRANITE IN PULSATING WATER-JET. 1st International Conference on Mechanical Materials and Renewable Energy, ICMMR,6-10 June 2017, Manipal India. (**SCOPUS**) doi:10.1088/1757-899X/377/1/012116.

2. **Rupam Tripathi**, Madhulika Srivastava, Sergej Hloch, Somnath Chattopadhyaya, Alok Kumar Das, Alokesh Pramanik. PERFORMANCE ANALYSIS OF PULSATING WATER JET MACHINING DURING DISINTEGRATION OF ROCKS BY MEANS OF ACOUSTIC EMISSION. International Conference on Application of fluid Dynamics, December 19-21, 2016 IIT(ISM) Dhanbad. Lecture notes of Mechanical Engineering- Application of Fluid Dynamics. (2018). (**SCOPUS, WoS**) doi: 10.1007/978-981-10-5329-0_38.

3. **Rupam Tripathi ,** Madhulika Srivastava, Sergej Hloch, Pavel Adamčík, Somnath Chattopadhyayaa, Alok Kumar

Das. MONITORING OF ACOUSTIC EMISSION DURING THE DISINTEGRATION OF ROCK. Procedia Engineering, International Conference on Manufacturing Engineering and Materials, ICMEM,6-10 June 2016, Nový Smokovec, Slovakia, (2016). (**SCOPUS, WoS**) doi: 10.1016/j.proeng.2016.06.695.

4. **Rupam Tripathi**, Madhulika Srivastava, Mohammed Shariq, Somnath Chattopadhyaya, Alok Kumar Das, Sergej Hloch. PERFORMANCE ANALYSIS OF ABRASIVE WATER JET MACHINING: A REVIEW. In: Book of abstracts of qPace International Conference,9-11 January 2016, ISM Dhanbad,pp.101

5. Madhulika Srivastava, Sergej Hloch, **Rupam Tripathi**, Drazan Kozak, Somnath Chattopadhyaya, Amit Rai Dixit, Josef Foldyna, Pavol Hvizdos, Martin Fides, Pavel Adamcik. PROSPECTIVE OF USING PULSATING WATER JET PEENING AS A SURFACE TREATMENT PROCESS. Proceedings of the Conference on Water Jetting Technology Water Jet 2017 – Research, Development, Applications, September 13-15, 2017, Lednice, Czech Republic.

6. Madhulika Srivastava, **Rupam Tripathi**, Sergej Hloch, Ayush Rajput, Drupad Khublani, Somnath Chattopadhyaya. SURFACE TREATMENT OF AISI 304 USING PULSATING WATER JET PEENING. International Conference on Application of fluid Dynamics, December 19-21, 2016 IIT(ISM) Dhanbad. Lecture notes of Mechanical Engineering- Application of Fluid Dynamics. (2018). (**SCOPUS, WoS**) doi: 10.1007/978-981-10-5329-0_40.

7. Mohammed Shariq, Madhulika Srivastava, **Rupam Tripathi,** Somnath Chattopadhyaya, Amit Rai Dixit, Pedro Vilaca, Rebeka Rudolf. CHARACTERIZATION, MATHEMATICAL MODELLING AND OPTIMIZATION OF PROCESS PARAMETERS OF FRICTION SURFACED COATING OF FERROUS AND NON FERROUS ALLOYS. Presented in: 2nd joint doctoral students conference POZ:MAR 2016, 30 June - 1 July ,Maribor,Slovenia ,pp.12.

8. Madhulika Srivastava, **Rupam Tripathi**, Sergej Hloch, Somnath Chattopadhyayaa, Amit Rai Dixit. POTENTIAL OF USING WATER JET PEENING AS A SURFACE TREATMENT PROCESS FOR WELDED JOINTS. Procedia Engineering, International Conference on Manufacturing Engineering and Materials, ICMEM,6-10 June 2016, Nový Smokovec, Slovakia, (2016). (**SCOPUS, WoS**) doi: 10.1016/j.proeng.2016.06.694

9. Mohammed Shariq, Madhulika Srivastava, **Rupam Tripathi,** Somnath Chattopadhyaya,Amit Rai Dixit. FEASIBILITY STUDY OF FRICTION SURFACED COATINGS OVER NON-FERROUS SUBSTRATES. Procedia Engineering, International Conference on Manufacturing Engineering and Materials, ICMEM,6-10 June 2016, Nový Smokovec, Slovakia, (2016). (**SCOPUS, WoS**) doi: 10.1016/j.proeng.2016.06.693

10. Madhulika Srivastava, **Rupam Tripathi**, Mohammed Shariq, Somnath Chattopadhyaya, Amit Rai Dixit, Sergej Hloch. ABRASIVE WATER JET MACHINING OF HARD TO MACHINE MATERIALS: A REVIEW. In: Book of abstracts of qPace International Conference,9-11 January 2016,ISM Dhanbad, pp.100.

11. Arghya Bagchi, Madhulika Srivastava, **Rupam Tripathi**, Somnath Chattopadhyaya. EFFECT OF DIFFERENT PARAMETERS ON SURFACE ROUGHNESS AND MATERIAL REMOVAL RATE IN ABRASIVE WATER JET CUTTING OF NIMONIC C263. Materials Today Proceedings (2019). doi:10.1016/j.matpr.2019.09.104. (**SCOPUS**).

National Conference

1. Mohammed Shariq, Madhulika Srivastava, **Rupam Tripathi,** Somnath Chattopadhyaya, Pedro Vilaca. THERMAL ANALYSIS AND MICROSTRUCTURE CHANGES DURING FRICTION STIR SURFACING OF VARIOUS FERROUS AND NON FERROUS ALLOYS. National Conference on Advances in Thermal Engineering, 19-20 December 2014, ISM Dhanbad, India, 258-264.

Poster Presentation

1. Presented poster titled “Rock cutting by water-jet” at International Conference on Manufacturing Engineering and Materials, ICMEM, 6-10 June 2016, Nový Smokovec, Slovakia.

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INTERNSHIPS & TRAININGS

1. Summer Internship at Tata Steel, Jamshedpur on *"Studying and Designing of a Simulator to demonstrate all Parameters of Centrifugal Pump".* — June 2014- July 2014
2. Summer Training at Indo Danish Tool Room, Jamshedpur on the topic *"Thermal Analysis of Refractory Lining in Blast Furnace through ANSYS".* — July 2014
3. Certified course in AUTOCAD from CETPA, Lucknow. — July 2010
4. Summer Training at in Research & Design Standard Organization, Lucknow.
5. Summer Training at in HAL, Lucknow. — June 2009

WORKSHOPS & CONFERENCES ATTENDED

1. Attended one day International workshop on "***Precision Engineering and Management***" at IIT ISM Dhanbad. — 15th January 2020
2. Attended two day International workshop on "***Water Jet Processes and its related 4.0 Applications***" at IIT ISM Dhanbad. — 7th - 8th Dec. 2019
3. Attended "***International Conference on Manufacturing Engineering and Materials***, ICMEM 2018, at Nový Smokovec, Slovakia." — 18th - 21st June 2018
4. Attended three day International workshop on "***Water Jet Technology***" at Technical University of Koscie, Slovakia. — 12th - 14th June 2017
5. Attended "***International Conference on Manufacturing Engineering and Materials***, ICMEM 2016, at Nový Smokovec, Slovakia. — 6th - 10th June 2016
6. Attended "***International Conference on Application of fluid Dynamics***", at ISM Dhanbad. — 19th - 21st Dec. 2016
7. Attended "***National Conference on Advances in Thermal Engineering***", at ISM Dhanbad. — 19th - 20th Dec. 2014

OTHER ACHIEVEMENTS

1. Received Scholarship during PhD through Government of India (MHRD).
2. Participated as a member of the organizing committee in International Conference on Manufacturing Engineering and Materials ICMEM 2016, Nový Smokovec, Slovakia.
3. Received **ERASMUS + Scholarship** for carrying out the research work for three months at Technical University of Kosice, Slovakia.

REFERENCES

1. Dr. SOMNATH CHATTOPADHYAYA
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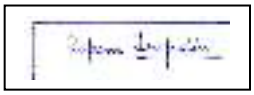
RUPAM TRIPATHI

DECLARATION I hereby declare that all the information given above is true to the best of my knowledge.



DATE: 20/01/2022

PLACE: LUCKNOW

Rupam Tripathi