1. Name: Dr **Asim Kumar Mukherjee**

2. Designation: Visiting Professor, Fuel Mineral & Metallurgical Engineering IIT(ISM) Dhanbad

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3. Date of Birth: 12th June 1965

4. Educational Qualifications (in chronological order):

	Institute	Degree	Department	Year	OGPA/CGPA
A.	Indian School of Mines, Dhanbad	M. Tech	Minerals Engineering	1992	4.38/5.0
B.	Indian Institute of Technology Kanpur	Ph.D.*	Materials & Metallurgical Engineering	2007	9.00/10

* Thesis topic; Liquid/solid fluidization and its relationship to particle segregation during jigging

5. Professional Experience (in chronological order):

Positions held:

Sl. No.	Place of Employment	Period	Designation
i.	Indian Rare Earths Ltd.	1991-95	1 year Graduate Engineer Trainee and then Engineer
ii.	Indian Rare Earths Ltd.	1995-98	Senior Engineer
iii.	Tata Steel, Jamshedpur	1998-2002	Manager
iv.	Tata Steel, Jamshedpur	2002-07	Principal Researcher (R3)
vi.	Tata Steel, Jamshedpur	2007-2014	Principal Scientist (R3S)
v	Tata Steel, Jamshedpur	2014 – 2019	Head, Raw Materials Research Group
vi	Tata Steel, Jamshedpur	2019 – Till June'25	Chief, Raw Materials Research Group
vii	IIT (ISM) Dhanbad	2025 July onwards	Visiting Professor, Dept. FMME

6. Publications & Patents

- **Published 114 papers** in refereed International Journal and Conferences.
- **Filed 59 patents** with **50 granted** patents.

7. Membership of Professional/Academic bodies:

- Indian Institute of Metals (Member)
- Institute of Minerals Engineers (Life Member)
  (Executive Council Member of the IIME and Vice President Jamshedpur Chapter, IIME till date.)
- Member of BIS on Raw Materials & Ferro-alloy committee.
- Member of International Mineral Processing Congress.
- Ex-member of Research Council of IIT(ISM) Dhanbad.
- Ex- Senate member of IIT Goa.
- Well connected to OEMs, CSIR labs, international labs, Industry experts and Engineering companies.

8. Awards & Honours received:

- Selected in **Tata Steel sponsored Ph.D**. program at IIT Kanpur, 2002.
- Received the prestigious **"National Mineral Award – 2007"** from Ministry of Mines, Govt. of India.
- Received "**IIME Mineral Beneficiation Award, R&D – 2014**" from Indian Institute of Mineral Engineers
- Received the prestigious **"Tata Innovista – 2010 Award"** in the category of "*Promising Innovation*" from Tata Group.
- Awarded "**Adjunct Faculty**" by CSIR.
- Review **committee member** on project evaluation and funded by Ministry of Steel. GOI.
- Member of **Technology Leadership** Area (**TLA)** committee on Raw Materials of Tata Steel
- Member of **International Advisory Committee** of International Mineral Processing Congress **(IMPC**).
- **Supervisor for four Ph.D. student**.

- **Best project award** by Tata Steel, Tata Search and IIME in numerous occasions.

9. Major achievements towards establishing Technology Leadership.

- Developed technology to lower alumina and / or Phosphorus in the concentrate from low grade iron ore.
- Develop process to lower clean coal ash with no / minimum drop in clean coal yield.
- Improving plant throughput / efficiency.
- Developing / adopting new equipment to fulfill above three points.
- Enabling the team with new skillsets and capability.
- Connecting the team with collaborating partners within and outside Tata Steel

10. Selected **Few Commercialised Projects * :**

(i) Developed a **new process** on beneficiation of high alumina iron ore slime and established **involve selective flocculation** process**.** The process can **lower alumina% from around 10 to 3** with process reject to contain less than 45% Fe. Implementation in progress.

(ii) **Developed Tata – JK Dense Media Cyclone** from 1st Principal involving CFD studies. The commercial scale trial showed **Ep value less than 0.02**.

(iii) A **new generation external sparger** was developed based on extensive CFD studies and commercialised in the column flotation plant at Bhelatand. Implemented

(iv) a **new reagent for iron ore scrubbing** which helps in reduction in moisture content of the fine concentrate as well as in decreasing the alumina level in the fines. Implemented.

(v) Initiated development of **physics-based model** for unit operations using **CFD and DEM** in the group.

(vi) Initiated **quantum mechanics model** to develop reagents for beneficiation and agglomeration processes.

(vii) Developed **process flowsheet** for **New Millennium** Iron ore deposit **at Canada and Sedibang** iron ore deposit **at South Africa**. Presently, Tata Steel is operating in Canada mines.

(viii) Part of team that **commissioned Jig plant at Noamundi**, the first of its kind in India.

(ix) **Increased plant throughput** of dry beneficiation plant at Joda by 30% using Superabsorbent Polymer **(SAP**). Implemented at various site.

(x) **Developed new** iron ore **flotation reagent** through molecular modelling and reagent synthesis. The new reagent **lowers alumina content** in the product **by 2%.** The process established at pilot plant scale.

(xi) Initiated high value **collaboration with Chinese University (CUMT), US** agency (Patterson & Cooke), OEMs and many IITs, CSIR labs and national institutes.

(xii) Developed **vendors** working in Mineral processing domain.

(xiii) Developed **iron ore beneficiation pilot plant,** developed **interface science lab**, developed **flowability lab,** developed fluid flow **modelling lab**, developed Reagent **synthesis lab**, at R&D

(xiv) **CAPEX scheme** (of around Rs. 100 Cr) prepared for **a continuous pilot scale beneficiation plant** on coal & iron ore along with E&P.

(xv) **Implemented new flocculant** for dewatering of coal washery tailings.

(xvi) Implemented **new design feed well** for thickener at West Bokaro Washer III.

(xvii) Implemented **Oily bubble flotation** to improve coarse clean coal recovery at West Bokaro washery.

(xviii) Implemented **new design 3D screen panel** for ultrafine dewatering at Noamundi wet processing plant.

(xix) Implemented **new design (self-cleaning) screen panel** at Joda Dry beneficiation plant to improve plant **throughput by 10%** at high moisture feed.

(xx) **New design drive** for screen panel **at scalper of Joda** Wet Processing plant. Implementation in progress.

(xxi) Implemented **new design hydrocyclone** to reduce cut size from 45 micron to 15 micron at Noamundi.

(xxii) Developed from 1st principal **a new organic binder for pellet making** and demonstrated the same at plant scale. Implementation in progress.

(xxiii) Established Centre of Excellence **(COE) at IIT(ISM) Dhanbad** for Tata Steel Raw Materials technology development.

[* Benefit potential of implemented projects is between Rs 10 Cr to Rs 100 Cr/annum and are mostly recurring type. All these projects started at low TRL and implemented by our team with required support from operation]

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