

Sibasis Acharya

Opening Statement

Engineer with an extensive industrial and research experience in Mineral Processing, Metallurgical Testing, Process Metallurgy, Hydrometallurgy, Pyrometallurgy, Physical metallurgy and Material science. More than 14 years of experience covering both industrial and research programs to optimize the processes as a Project Manager within large global mining companies in several countries, Australia, Germany, France and India with extensive technical expertise including, Extraction of Ferrous & Non-Ferrous metals, Processing of Minerals, Thermodynamics & Kinetics, Phase equilibria, Simulation and Optimization.

My main goal is to use my management, analytical, technical and R&D skills to improve operational efficiencies and drive business growth through innovation. I work ethically, honestly, express my creativity in my workplace, and influence others to achieve effective results, deal with accurate attention to detail and balance between work & family life.

Key Areas of Expertise

- Mineral Processing, Metallurgical Testing, Hydrometallurgy, Pyrometallurgy, Process Metallurgy, Simulation & Optimization, Physical Metallurgy;
- Managing projects and leading people with sense of direction and purpose;
- Proven ability to develop strategic thinking to enable innovation within project environment to increase efficiency and productivity;
- Focusing on peoples' talents and time with clear goals and objectives, which enable me to produce immediate outputs and longer term outcomes;
- Acquired an extensive knowledge on Mineral processing & Metallurgical engineering, it enables me to make sound decision confidently.

Qualifications

- MBA (Continuing) - University of Queensland (2014-2015) (Globally Ranked #16 by The Economist)
- PhD (Metallurgical Engineering) - Indian Institute of Science Bangalore, India (2000 - 2005) (Globally Ranked #130 by The Times Higher Education on 2013, One of the premier Institutes in Asia)
- MTech (Material Science & Technology) - Indian Institute of Technology, BHU, Varanasi, India (1997 - 1999) (Indian Ranked #5 by The Times of India on 2013)
- MSc (Chemistry) - Utkal University, Vanivihar, Bhubaneswar, India (1995 - 1997)
- BSc (Hons) (Chemistry) - Utkal University, Vanivihar, Bhubaneswar, India (1992 - 1995)

Employment Details

Organization: MIDAS Tech International Ltd, Australia Sept. 2014- to date

Position: Project Consultant

It is a startup company based in Brisbane, Australia and developing novel mathematical Approaches for Mineral processing company, primarily extending mass balance analysis to Machine learning. The company is highly specialized company using Advanced Software, Mathematics and Mineral processing. This technology is about 20 years ahead of other Approaches and will revolutionize mineral processing audit analysis. With revenues over US\$ 3 million, and an employee talent capital of over 20.

Key Accomplishments:

- Acting as Project leader for Mineral processing projects.
- Advanced mass balancing, Metallurgical accounting, Estimating solid flow from assays or, percent solids or, sizes, Optimization of process, Feasibility studies.
- Process simulation, Process optimization, Probability approach to process simulation, MCMC approach to Mass balance.
- Interpretation of laboratory and pilot results, and assisting clients in the development of test work programs.

Organization: IGATE global solution ltd - Rio Tinto's Innovation Centre, India, Feb.2014- June 2014

Position Held: Principal Consultant

IGATE is a global leader in providing integrated technology and operations-based solutions, headquartered in New Jersey, USA. IGATE provides solutions to clients' business challenges by leveraging its technology and process capabilities, underwritten by an understanding of domain and industry imperatives. IGATE global solution has received a Network partnership from a big Mining company, Rio Tinto Australia. With revenues over US\$ 1.2 billion, and a global employee talent capital of over 33,484.

Key Accomplishments:

- Acting as Project leader for all Mineral Processing projects.
- Functional and professional leadership in all areas of Mineral Processing, Hydrometallurgy, Process Metallurgy, Ferrous & Non-ferrous Metallurgy, Pyrometallurgy, Physical Metallurgy.
- Project managing, executing & delivering new and existing projects for Rio Tinto, Australia.
- Supervise the day-to-day activities, monitoring and scheduling performance of project teams.

Organization: HRL Testing Ltd, Brisbane, Australia March 2012-Dec. 2013

Position Held: Project Manager

HRL Testing Ltd (formerly Hydrometallurgy Research Laboratories) is a Metallurgical & Mineral Processing industry and specialized in Process development and Metallurgical Testing. It was founded in 1981 and was a part of MIM ltd, Xstrata ltd. It is a well-established mineral processing laboratory, it offers a comprehensive range of mineral processing

capabilities. With revenues over US\$ 15 million, and an employee talent capital of over 100.

Key Accomplishments:

- Acting as Project leader for several projects from our global mining clients, Xstrata, Newcrest, BHP Billiton, Metallica, Carpentaria Exploration projects.
- Functional and professional leadership in all areas of Mineral processing, Hydrometallurgy, Process metallurgy, Ferrous & Non-ferrous metallurgy, Physical metallurgy, Modelling, Metsim, Limm.
- Project planning, costing & scheduling of new and existing projects for different clients. Interacting with both internal and external clients, solving their problems and supporting user requirements.
- Supervise the day-to-day activities, monitoring and scheduling performance of project teams.
- Interpretation of laboratory and pilot results, assisting clients in the development of test work programs and improved the revenue of my company.

Organization: Metallurgical & Mining Engineering,
University of Queensland, Brisbane, Australia

2009-2012

Position Held: Research Fellow

The University of Queensland (UQ) is one of Australia's leading research and teaching Institutions and ranked in the world's top 100. The university strives for excellence through the creation, preservation, transfer and application of knowledge (Globally Ranked #43 by QS World University Rankings).

Key Accomplishments:

- Acting as Project Leader for all new projects and maintenance at Pyrosearch centre, Metallurgical & Mining engineering department.
- Functional and professional leadership in all areas of Mineral processing, Pyrometallurgy, Hydrometallurgy, Process metallurgy, Ferrous & Non-ferrous metallurgy, Physical metallurgy, Thermodynamics & Kinetics, Phase equilibria, Modelling (Factsage, Thermocalc, Aspen, Metsim), Recycling of E-waste & Materials characterization (XRD, SEM, EPMA, TEM etc).
- Project planning, executing & delivering new and existing projects for different companies.
- Supervise the day-to-day activities, monitoring and scheduling performance of project teams.
- Interpretation of laboratory and pilot results, and assisting clients in the development of test work programs.

Organization: Arcelor Mittal steel

2008-2009

Position Held: Research Engineer

ArcelorMittal is the world's leading steel and mining company. It guided by a philosophy to produce safe, sustainable steel, it is the leading supplier of quality steel products in all major markets including automotive, construction, household appliances and packaging. With revenues over US\$ 30 billion, and an employee talent capital of over 240,000 (Globally Ranked #1 based on Steel production, a Fortune Global 500 company).

Key Accomplishments:

- Looking after the development of new steel grade with high strength. Extensive steel plant services and work in a team environment.

- Handled the Arcelor Mittal steel projects for different plants in Europe.
- Functional and professional leadership in all areas of Iron & Steelmaking, Secondary steelmaking, Physical metallurgy, Process metallurgy, Thermodynamics & Kinetics, Phase equilibria, Modelling (THERMOCALC, ASPEN), Mineral processing, Extractive metallurgy, HAZOP study (PHAST) & Materials characterization.

Organization: Institute of Metallurgy, Technical University of Clausthal, Germany, 2005
2008

Position Held: Scientist

Clausthal University of Technology is an internationally renowned institution with strong regional ties. The University has strong traditions of quality education recognized and valued by many national as well as international companies.

Key Accomplishments:

- Developed all the projects phases i.e. Budgeting, Scheduling, Planning & Execution
- Functional and professional leadership in all areas of Process metallurgy, Physical metallurgy, Mineral processing, Extractive metallurgy, Iron & Steelmaking, Thermodynamics & Kinetics, Phase equilibria, Modelling (THERMOCALC, DICTRA, FACTSAGE & ASPEN) & Materials characterization.
- Handled Salzgitter Mannesmann GmbH, European commission, & DFG projects.
- Supervision of Master, PhD students/technicians and completion of jobs.

Organization: IT-Bhubaneswar, India

June 1999-Dec. 2000

Position Held: Lecturer (Chemistry, Metallurgical engineer)

The institute was accredited by National Board of Accreditation (NBA) and recognized by AICTE, New Delhi. Institute of Technology was affiliated to Biju Pattnaik University of Technology (BPUT) Rourkela, Government of Odisha, India.

Key Accomplishments:

- Teaching and development on the Chemistry and Metallurgical subjects.
- Working on the development & design of smelter & converter.
- Working on the alloy development and materials characterization.
- Functional and professional leadership in all areas of Metallurgy & Materials science, Chemistry.

Projects under taken in IGATE Global Solution ltd.-Rio Tinto Innovation Centre in India

- Increasing the sortibility of ores using the innovative temperature gradient technique in comminution step.
- Using high energetic radiation in comminution step to increase the grinding efficiency, flotation and leaching capabilities of ores.
- Increasing the filtration capability in precipitation step of Bayer process using some Additives.
- Grinding and grind size establishment of the high energy treated ore samples. Comparison of leaching of the high energy treated and untreated ore in the comminution step.

Projects under taken in in HRL testing ltd, Australia

- Crushing, grinding, grind size establishment and determination of energy efficiency of grinding curve of Paris silver and various Ore samples.
- High pressure acid leaching, High Pressure oxidation of different Ore bodies.
- Precipitation of Mixed Hydroxide Precipitate (MHP) using lime, magnesia method.
- Viscosity is determined by using Bohlin viscometer and settling test is determined by using suitable flocculant.
- Heavy media separation of Fluorite ore samples.
- Characterization and Hydrocycloning of Pyrite concentrate, production of iron ore super concentrate using high intensity wet magnetic, LIMS.
- High intensity magnetic separation of limonite Iron ore.
- Improvement of recovery on fine magnetic particle using floc magnetic separation.
- Beneficiation of Iron ore using reverse flotation (flotation of silica using anionic, cationic reagents).
- Comparative studies on reverse cationic/anionic flotation on Iron ore in Denver cell.
- Development optimized collectors and investigation shape, size and stability of froth in flotation.
- Recovery of minerals (Copper, Zinc, Nickel, Lead, Gold, Silver etc) from their ores using froth flotation technique.
- Flotation(Roughing, Scavenging and Cleaning) of Romaltyn sulphide sample (Low grade Gold Ore), CPE fluorite ore by using AgitairLA500R float cell.
- Optimisation studies of Gold bearing Copper sulphide flotation.
- Flotation of Silver bearing argentiferous galena, argentite and tetrahedrite;
- Flotation of Nickel from a nickeliferous laterite ore
- A novel approach for preferential flotation recovery of minerals from Copper-Zinc-Lead ore.
- Cyanide leaching on Float tail of Sulfide ore samples using bottle roll technique.
- Hydrometallurgical treatment in Leaching (Cyanide, CIL, CIP, Albion, Column),
- High pressure oxidation, Solvent extraction, Ion exchange, Electrowinning,
- Galvanox of Copper sulphides & oxides and Chalcopyrite, Aresenopyrite, Pyrite, Pyrrohtite, Gold minerals.
- High pressure acid leaching of Nickel laterite and followed by purification (Solvent Extraction, Precipitation of MHP (mixed hydroxides precipitate).
- Optimization of Gold, Silver leaching by using stirrer agitator method with different concentration of NaCN & different residence time.
- Heap leaching, bioleaching, Solvent extraction, Ion exchange, Electrowinning, Precipitation of minerals in Copper ore.
- The effect of Sulfide minerals on the leaching of Gold aerated cyanide solutions.
- Optimising the operating condition for Iron precipitation as goethite with the reduction of precipitation of Copper during the purification of Zinc solution.
- Optimizing Characterization of Coal pyrolysis products at different temperature and time.
- Multi-stage sequential leaching of Gold for high grade and medium grade ore samples.
- Removal of heavy metal ions from waste water by Precipitation and Ion-exchange Techniques.
- Removal of Arsenic from Copper ores by alkaline leaching.
- Alkaline leaching of Uranium ore.

Projects under taken in UQ, St. Lucia, Australia

- Removal of lead minerals from copper industrial flotation concentrates by xanthate Flotation in the presence of dextrin.
- Beneficiation of Iron ore using cationic, anionic reagents in reverse flotation.
- High intensity magnetic separation of hematite, limonite Iron ore.
- A novel approach for preferential flotation recovery of Zinc from Copper-Zinc Sulphide ore.
- Flotation separation of high grade and low grade sulphur in lead-zinc ore.
- The effect of sodium di-methyl-dithiocarbamate as a co-collector with xanthates in Flotation of pentlandite, Nickel ore.
- The use of di-alkyl-dithiophosphate for Copper, Gold and Silver bearing ores Flotation.
- Flotation of Gold bearing Lead-Zinc sulphide ore.
- Recycling of electronic scrap using chemical thermodynamics and phase equilibria techniques.
- Phase equilibria studies on the Copper, Iron, Tin, Lead, Zinc smelting and refining slags.
- Effect of partial pressure, temperature & trace metal on liquidus areas are studied for the CaO-FeO-Fe₂O₃-SiO₂, Cu₂O-CaO-Fe₂O₃-SiO₂, SiO₂-Al₂O₃-SnO₂-SnO₂ systems.
- Effect of Al₂O₃ & MgO on liquidus areas are studied for the CaO-FeO-Fe₂O₃-SiO₂ system.
- A thermodynamic assessment of Nickel-Lead, Nickel-Iron systems
- Phase equilibria and distribution of minor elements between Nickel melt and Al₂O₃-CaO-MgO slag at 1500C.
- Thermodynamic analysis of the soda ash in smelting of lead acid battery.
- Thermodynamic optimisation of CaO-PbO, CaO-PbO-SiO₂ systems.
- Solubility of lead in CaO-FeO_x-SiO₂ slags at Iron saturation.
- Thermodynamics and phase equilibria studies on PbO-ZnO-CaO-FeO_x-SiO₂ slags at lead saturation.
- Process and reactor design for air on blast furnace, ladle metallurgy, Copper smelter in Isasmelt process and Noranda process.
- Mineral processing of Iron ore using magnetic separation technique.
- Grind size establishment of high grade ores.
- Removal of arsenic from Copper ores by alkaline leaching.
- Gold and Silver leaching using NaCN with stirred beaker technique.
- Hydrometallurgical treatment (Solvent extraction, Ion exchange,
- Electrowinning, Galvanox) of Copper sulphides & oxides and Chalcopyrite, Gold minerals. Grinding, crushing & flotation of Copper, Zinc, Lead, Gold minerals.

Projects under taken in Arcelor Mittal steel, Metz, France

- Thermodynamics and Phase equilibria evaluation for steel & slag materials.
- Dissolution Fe-Ti alloys.
- Mineral processing of Iron ores.
- Crushing, grinding and screening of high sulphide ores.
- Dephosphorization of high manganese steel.
- Viscosity measurements and modeling of slag materials for mould powder.

- Development of high Manganese steel for automotive industries.

Projects under taken in Technical University, Clausthal, Germany

- Thermodynamics studies of Steel making & Slag materials and its Mathematical Modelling.
- Crushing, grinding and screening of Iron ores.
- Grind size establishment of different ore bodies.
- Purification of Alumina using Bayer's process.
- Gravity separation of high sulphide ore using tabling and Knelson techniques.
- Flotation of iron, copper, zinc, lead, gold, silver minerals from their complex ores using suitable collector reagents.
- Development of TRIP (TRansformation Induced Plasticity by Martensitic Transformation) and TWIP (TWinning Induced Plasticity) steels.
- Desulphurization of steel.
- Evaluation of Thermodynamic properties of Fe-based alloys using VASP, BGM, CPMD techniques.

Projects under taken in PhD & Master degree

- Thermodynamics study of Electronic Materials and its Mathematical modeling.
- Thermodynamics evaluation of Nanophases and Phase equilibria in various alloy systems
- Thermodynamics and Phase Equilibria in the Al-Bi-Sb system
- Activities of Al in the Al-Ga-Bi-Sb in the temperature range 1173K to 1323K
- Thermodynamic modelling of the Phase Equilibria in the Al-Ga-P-As system
- Thermodynamics of surfaces and adsorption in Al-Cu system
- Corrosion study of Metallic materials and its control using Inhibitors
- The Corrosion Inhibition of Copper by some Azole Derivatives in NaCl solution
- The Inhibition of Corrosion of Mild Steel by some Alkaloids in Sodium chloride solution
- Synthesis and Characterization of Electronics Ceramic

Computer Skills

- Programming Languages: MATLAB, C, C++, FORTRAN-90, VB
- Software: MATLAB, MATHEMATICA, MAPPLE, FACTSAGE, THERMO
- CALC, DICTRA, PANDAT, PANENG, LATEX, VASP, CPMD, ASPEN, PHAST,
- JKSIMMET, METSIM, SysCAD, LIMN, MMPlantMonitor
- Operating Systems: Unix, Windows-2010, XP

Analytical Instrumentation

- Atomic absorption technique, ICP-emission spectroscopy, Laser size analyzer-Master sizer 2000, Autoclave oxidation.

- XRD, Optical microscopy, Scanning Electron Microscopy (JEOL6300, JEOL6400, JEOL6460), TEM (JEOL1010s), ESCA, EDS (PhilipsXL-30),GDS, EPMA(JEOL8800L, 8200),EBSD, Ultrasonic testing, UCS.
- CMS (Corrosion Measurement System), Impedance analyser, Sessile drop technique, Tensile testing, Hardness testing, Wear testing, Hall and Resistivity measurements etc.

Hobbies

- Yoga, Jogging, Travelling and Participation in cultural activities

Special Achievements

- Got a prestigious Australian Research Council's funding for my Senior Post Doctoral work.
- Got a prestigious German civilian scholarship for my Post-doctoral work.
- Listed in Marquis Who's Who in Science and Engineering, USA, 2006, 9th edition.
- Listed in Marquis Who's Who in the World, USA, 2008, 25th edition.
- Listed in Editorial board for International Journal of Advances in Engineering and Technology.
- Listed in Editorial board for Journal of Materials science and Surface engineering.
- Listed in Editorial board for Journal of Materials science and Surface engineering.
- Listed in Technical advisor board for all associated Journals in Blue Eyes Intelligence-Engineering and Sciences publication ltd.- International Journal of Engineering and Advanced Technology (IJEAT); International Journal of Recent Technology and Engineering (IJRTE); International Journal of Innovative Technology and Exploring Engineering (IJITEE); International Journal of Innovative Science and Modern Engineering (IJISME); International Journal of Advanced Engineering and Nano Technology (IJAENT); International Journal of Inventive Engineering and Sciences (IJIES); International Journal of Emerging Science and Engineering (IJESE); International Journal of Basic Sciences and Applied Computing (IJBSAC); International Journal of Management and Humanities (IJMH); International Journal of Soft Computing and Engineering (IJSCE).
- Working as a reviewer in various reputed journals in Materials science and Metallurgical engineering.
- Won the IISc, India scholarship for my PhD degree.
- Won a student best paper award contest in the Metallurgical and Materials Science Conference at Indian Institute of Science, Bangalore, India-2005.
- First position in Analytical Chemistry during my Post graduation.
- Third place in Materials Technology at I.T., B.H.U, Varanasi, India during my M.Tech.
- Selected in GATE (Graduate Aptitude Test in Engineering) scholarship for M.Tech at I.I.T., B. H. U, Varanasi, India, 1997.
- Selected from Orissa, India to participate in the 1989 National Mathematics Olympiad.

- Won government scholarships in India for excellence in academics at various levels of high school studies (class VII and X).

Technical & Report Publications

I have published around 23 technical articles on peer reviewed international & highly impact journals and around 40 technical reports during my stay in Industries and Universities. I have addressed successfully many diverse audiences in various national and international conferences. Available on request.

Personal Affiliations

- The Australian Institute of Project Management (AIPM)
- The Materials Research Society of India (MRSI)
- The Minerals, Metals, & Materials International
- The Electro Chemical Society of India (ECSI)

Personal Information

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