DR. PRABHU SHANKAR MISRA
misrafmt@mail iitr.ernet.in

Designation : Professor

Date of Birth : April 7, 1945

Qualification :

1. B.Sc. Lucknow University
2. B.E. (Met.) University of Roorkee
3. M.E. (Met) Indian Institute of Science, Banglor
4. Ph.D. (Met.) University of Roorkee

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Areas of interest :

Powder metallurgy, Ceramic processing, cermets, Alloy design and development, mechanical metallurgy, welding metallurgy and metal forming

Experience :

a. Teaching and Research
b. About 27 years of teaching undergraduate and post graduate students of metallurgical engineering discipline, Research in areas of Powder metallurgy, mechanical metallurgy, Ceramics, alloy design and development and welding metallurgy.
c. Industrial
d. About 4 years in developing small scale industry for sintered powder metallurgy parts.
e. Testing and consultancy

   Actively involved in industrial consultancy leading at many industrial projects being concluded successfully and undergoing production at present.

Publications :

40 Nos. till date mostly in areas of Powder metallurgy , ceramics and alloy design & development.

Awards & Honors : Applied for patent for ODS alloy development, Likely to be awarded soon.

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No. of Ph.D 's Supervised : Eight Only

Interaction with Research and Industrial Organizations :

[a] Developed some Nickel based PIM super alloys starting from manufacturers of powder to finished producer under joint collaboration program with DMRL. This was attempted for the first time in India and these materials are complied for high temperature crecp ocsistant applications.

[b] Development sintering cycle for aluminum based PIM materials leading to its full demification. This is the only cycle were full demification of these alloys could be achieved.

[c] Completed with on metallurgical problems in power projects sponsored by CBI&P, New Delhi. In this project erosion due to silt in Himalyan base hydropower project has been studied and remedial measures to counter erosion due to heavy concentration of quartzite based oil were evolved ad applied successfully in the field.

[d] Completed an industrial project on 'Manufacturing problems in kanthal type alloys' sponsored 6, Vaishnov Studs Pvt. Ltd., Muzaffarnagar. Strength and ductility combinations of these alloys was established trough heat treatment cycle.

[e] Completed work on 'Development of stainless steel behavior' sponsored by M/S Indies Industries Ltd. Ghaziabad - manufacturing aspect of S.S.Bellows has started for the first time in India based n improved manufacturing technique developed employing latest concept of hydrostatic ironing.

[f] Development of ferrite based coating for microwave absorption application sponsored by DRDO was completed in order to evade radar detection of flying objects in space.

[g] Completed consultancy project for the development of diamond dust impregnated cermet for grinding of ophthalmic photo chromatic glasses. This is achieved for the fist time in India, the product compares with the best available in international market.

[h] Manufacture of Lanthanum Qoide doped barium titanate conducting ceramic pallets as temperature sensors.

Manufacture of tin oxide based sensor for detecting and analysis of industrial gases.

[d] Development of Oxides dispersion Strengthened ferritic superalloy thorough powder forging route for applications in high temperature creep resistance under sulfur bearing atmospheres. These alloys are of international quality and at much economical rates. Patent for its manufacturing technology is pending for approval.

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[c] Development of Iron-Phosphorous alloys in sheet form through PIM route containing phosphorous up to 27. These alloys are good substitutes for Fe-SS alloy sheets in electrical transformer core applications.

[l] Development of PIM Grads copper powder pre-from brass - scrap heading to economically viable production of Cu and Zn powders.

Name of the lab. : Metal Forming

Name of the O.C. : Dr. P.S.Misra

Equipment and Facilities available :

Mechanical and hydraulic presses, powder processing and testing equipment, high temperature sintering and heat treatment furnaces, induction heating and melting facilities etc.

Current Research projects going on :

1. Development of Barium hexagonal ferrites for micro-absorber paints.
2. Development of Iron-Phosphorous PIM alloys for magnetic applications
3. Development of PIM based high-density Friction material for aircraft brakes.
4. Development of Al-Graphite PIM antifriction material for heavy-duty bearings.
5. Development of High speed tools from H.S.S. Semp.

Previous research projects undertaken :

1. Study of densification behavior of Iron-based alloys during powder reform forging.
2. Manufacture of seamless stainless steel bellows for temperature & pressure sensor applications.
3. Production of Cermet pallets for ophthalmic photo chromatic Glass Grinding.
4. Stud of PIM Extrusion of Al powders using square and conical dies.
5. Manufacture of Ferritic ODS super alloys by powder forging and their characterization
6. Manufacture of SnO2 based Gas sensors.
7. Development of wear resistant coating over threading dies.

Manufacture of PIM grade copper powder from Brass scrap.

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