

Guidelines for *i*-PSG Thematic Research Scheme:

Scope:

Thematic Research is a new initiative by *i*-PSG with an objective of creating or building a new research area for the **Laboratory**. **Seven Theme Areas and Theme Champions** are identified and frozen for the time being by the top leadership of the organisation and are listed. The project initiation and formulation responsibility solely rests with **Theme Champions**. However, an individual scientist can also approach the **Theme Champions** to pursue his or her research idea provided the research idea confines to one of the listed **Research Themes**.

The **Research Theme**:

- is generally virgin as far as **NML** is concerned but may not be new in international perception.
- is of the larger interest for the future capacity building of the **Laboratory**.
- largely addresses **metallurgical grey areas** and to an extent of **materials science**.
- may not necessary lead to **development of a technology** but lays foundation for future **technology development or capacity building or client servicing**.

Further, such projects

- initially may not necessary lead to **industrial/GOI sponsorship** but should ideally lead to one once fully matured.
- initial **six months** of the research duration will be considered **purely exploratory** in nature, after which a direction will have to be given on the way forward.
- any GOI funded education institutes/research laboratories may be partnered as collaborator. However, these collaborations should be only for initial hand holding for capacity building. The intellectual contribution of CSIR-NML should be unequivocally more in such partnerships
- a possible risk assessment or anticipated hurdles for achieving envisaged goals of the project may also be indicated in the proposal. This will help in project progress assessment during review process, if possible necessary measures to circumvent hurdles may be thought off.
- At end of the project or after the theme is matured based on committee's discretion matured theme project will be permitted for external funding with the theme champion co-ordinating further exploitation.

Funding opportunities:

- a maximum of **20 lakh** rupees is envisaged under this scheme and of which 50% or less may be availed by the collaborating laboratory/partner of any GOI funded organization.

Who & How can submit proposal:

Theme Champions are expected to initiate the proposals. Alternatively, all scientists irrespective of their position can formulate proposal and apply. The proposals initiated other than by **Theme Champions** should be first submitted to **Theme Champions** for his or her perusal and review. Only those proposals approved by **Theme Champions** will be subjected to *i*-PSG review for final consideration. Please note the restriction of one *i*-PSG project per scientist will not be applied in this scheme.

Review Process:

- First stage of review and approval of new proposal by **Theme Champion**.
- Second stage internal and external review by *i*-PSG. Reviewer comments to be sent to **Theme Champion and Project Leader**.
- Resubmission of proposal if necessary before open door meeting.
- Mid-term review in six months in open and close door meetings.

Research Areas for Thematic project

1. Fine Particles Processing

Champion: Dr. Ratnakar Singh

Keywords for Research: Micronization of coal; Enhance Gravity Separation (EGS); Dewatering

2. REE & PGM

Champion: Dr. K.K. Sahu

Keywords for Research: Processing; Extraction and application

3. Advanced separation processes

Champion: Dr. Rakesh Kumar

Keywords for Research: Solvent free separation; Molecular recognition separation; membrane separation; Dry beneficiation

4. Advanced Engineering materials

Champion: Dr. Arvind Sinha

Keywords for Research: High temperature Sensors; High temperature structural material; High temperature coating; High entropy alloys; Thermo Electric Power (TEP), Magneto-caloric materials, Energy storage material

5. Advanced Manufacturing Technologies

Champion: Dr. S. Tarafder

Keywords for Research: Additive Manufacturing; Functionally Graded Materials (FGM), Advanced Joining of Materials; Smart coatings

6. Modelling & Simulation

Champion: Dr. S. K. Das

Keywords for Research: Computational Materials Engineering (CME); Process Modelling

7. Environment, Energy and Resource Management

Champion: Dr. D Bandopadhyay

Keywords for Research: Slag Engineering; Environment Impact Assessment (EIA)/Life Cycle Analysis (LCA)/Plant performance auditing; Low sensible heat recovery; Carbon Capture & Utilisation (CCU); Carbon Capture & Storage (CCS); CO₂ management