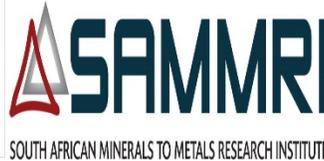




science & innovation

Department:  
Science and Innovation  
REPUBLIC OF SOUTH AFRICA



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## SAMMRI CALL FOR PROPOSALS 2021/22

It again gives us great pleasure to invite proposals for research projects to be conducted in 2021/22.

### SCOPE

Proposals are invited in any of the categories in the SAMMRI Technology Roadmap. Preference will however be given to proposals in the following areas:

***Mine-to-metal value optimisation.*** Proposals should develop new knowledge and practical approaches to better analyse and simulate the behaviour, efficiency and cost of the integrated mineral to metal value chain, as opposed to individual unit processes. This could involve techno-economic evaluation and systems value optimisation, mining and analysing data, technology selection to suit mining strategy, and improved flowsheet design.

***Enhanced concentrator, smelting and refining process technology.*** Proposals should be aiming at developing and testing early prototypes of techniques to enhance process efficiencies, while also providing an analysis of the potential value that could be added. This could also involve the metallurgical evaluation of existing technologies in relevant applications.

***Use of poorer quality water.*** Proposals should build on earlier work in the area and enhance the knowledge base and understanding as to the minimum quality of water that would be usable for flotation and other mineral processing operations. Cost-effective techniques for the appropriate removal of deleterious elements should be addressed.

***Enhanced fine grinding technology.*** Proposals should aim to develop techniques to reduce the consumption of energy in fine grinding applications, and could cover machine design, grinding media, operating parameters, etc. Emphasis will be given to the PGM industry.

***Selective liberation.*** The proposals should develop approaches that would enhance the efficiency of grinding through liberating valuable minerals at the coarsest possible size, and demonstrate the impact on technology selection, metallurgical efficiencies and cost.

***Minimising emissions, effluents and waste.*** Proposals should demonstrate innovative thinking and early testing of techniques to reduce the impact of the metallurgical value chain on the environment. This could involve the development of other uses for solid and liquid waste, as well as production of benign waste.

**Geo-metallurgy tools and techniques.** Proposals should develop new and innovative approaches to characterise ores and demonstrate the application of this knowledge to predict their behaviour and resultant metallurgical efficiencies.

**Efficient ore sorting / concentration technology.** Proposals should demonstrate the development of a deeper know-how on the application of ore sorting or other pre-concentration technology, including ore characterisation and techno-mineralogical simulation.

Proposals should aim to:

- Foster multi-disciplinary collaboration across local HEIs.
- Encourage participation of technology oriented SMEs.
- Deliver outcomes of which the technology readiness has been maximised, i.e. providing a clear understanding of their potential impact and implementation.
- Develop sustainable solutions that would improve process efficiencies and reduce cost.
- Assess, where relevant, environmental and safety risks.

## **EXPECTED IMPACT**

Proposals are expected to provide evidence that they will support the following objectives:

- Ensure a pipeline of high-caliber skills to the South African mineral processing industry and academia.
- Strengthen South Africa's leadership in mineral-to-metal research and solutions through generated know-how (patents, publications in high-impact journals and conferences, joint public-private publications etc.).
- Improve the economic viability of SA mining and mineral processing operations.
- Assist in the longer term to unlock new reserves or currently unexploited resources in the SA mining industry.