

SAMMRI PROJECTS 2018 – 2019

PROJECT TITLE	PROJECT LEADER	STUDENT	INSTITUTION
Fundamentally Based Mixing Rules for Optimisation of Transport and Comminution in tumbling mills	I Govender	Suren Moodley	University of Kwazulu Natal
Considering the action of frothers under degrading water quality	K Corin	Sarah Tetlow	University of Cape Town
The Application of a Micro cavitation reactor to the dissolution of metals from Ores	M Bwalya	Titus Nghipulile	University of Witwatersrand
Removal of Selenium and Tellurium from a Base Metals Refinery Waste Stream	S Ndlovu	Ellen Chiyangwa	University of Witwatersrand
Furthering the development of an integrated modelling framework	M Becker	Nicole Uys	University of Cape Town
Development of an electrowinning model for prediction of process performance	M Tadie	Mandy Tucker	Stellenbosch University
Flotation strategies for oxidised PGE ores	B McFadzean	Andrea Molife	University of Cape Town

SAMMRI PROJECTS 2017 – 2018

PROJECT TITLE	PROJECT LEADER	STUDENT	INSTITUTION
Fundamentally based scale-up rules for tumbling mills using Positron Emission Particle Tracking & Granular Flow Modelling	I Govender	Tinashe Ndemera	University of Kwazulu Natal
An analysis of water quality trends and the effects on flotation outcomes	K Corin	Resoketwae Manenzhe & Lisa October	University of Cape Town
Assessment of Sustainable and Environmentally Friendly Recycling Options for Lithium Ion Batteries (LIBs) in South Africa	S Bradshaw	Wonder Chimonye	Stellenbosch University

Evaluating economics of and business models for metal recycling from printed	C.Dorfling	Ruvimbo Manjengwa	Stellenbosch University
Characterising the role of additives on the electro-winning process	M Tadie	Christiaan Coetzee	Stellenbosch University
Synergistic behaviour of flotation reagents at interfaces	B McFadzean	Dandre Pienaar	University of Cape Town
Creating a validated multiphase model predicting the drainage of coal hopper/stockpiles	N Naudé	Bernard Fundikwa	University of Pretoria

SAMMRI PROJECTS 2016 – 2017

PROJECT TITLE	PROJECT LEADER	STUDENT	INSTITUTION
Water Scarcity on South African Mine Site	K Harding	Seetsa Lekeletsane	University of Witwatersrand
Evaluating the efficiency of metal recycling processes by means of life cycle assessment and exergy analyses	C Dorfling	Alicia de Waal	Stellenbosch University
Using enthalpy of immersion to characterise mineral surface hydrophobicity	B McFadzean	Jestos Taguta	University of Cape Town
Fault detection, identification and economic impact evaluation for a pressure leaching process	L Auret	Janco Strydom	Stellenbosch University
A fundamental study into the role of electrolytes on reagent interaction mechanisms in the flotation of a PGM ore in response to water quality challenges.	K Corin	Malibongwe Manono	University of Cape Town
Using X-ray computed tomography for the 3fD textural analysis of drill core in geometallurgy	M Becker	Marcelene Voigt	University of Cape Town
Impact breakage and damage of a partially confined bed of particles: A comparison of SPH and DEM validated against SILC experiments	L Bbosa	Temitope Oladele	University of Cape Town

CFD-DEM Modelling of the Chromite Steel Belt Sintering Process	J Zietsman	Wihann Johannes Leipoldt	University of Pretoria
The development of a simplified system for measuring the passage of particles on and through moving screen surfaces using positron emission particle tracking (PEPT)	A Mainza	Olumide Ogunmadimu	University of Cape Town
INTERN during 2016	J Wiese	Francini Hamisi	University of Cape Town

SAMMRI PROJECTS 2015 – 2016

PROJECT TITLE	PROJECT LEADER	STUDENT	INSTITUTION
The effect of grinding environment chemistry on flotation	K Corin	Jude Bonsu	University of Cape Town
Considering the effect of pulp chemistry during flotation on froth stability	K Corin	Nanji Sheni	University of Cape Town
Investigation of alternative hematite depressants in the flotation of iron ores	MJ Wiese	Ngoni Mhonde	University of Cape Town
Investigating the effect of dissolved Se and Te on Cu electrowinning efficiency	C Dorfling	Franklin Ngandu	Stellenbosch University
Tomography Studies of Micro-Scale Spatial Variations in the Leaching of Low Grade Sulphidic Minerals	M Fagan-Endres	Mahdi Ghadiri	University of Cape Town
Use of X-ray computed tomography for the mineralogical and textural characterisation and analysis of high density iron ores with implications for mineral processing	J Miller	Lunga Bam	Stellenbosch University
Investigating the role of dithiophosphate in the flotation of PGM's	B McFadzean	Thomas Jordaan	University of Cape Town
Mathematical Modelling of an Electromagnetic Levitation Cell Used for High Temperature Experiments	Prof Kok/Dr Zietsman	Suzanne Roberts	University of Pretoria

Treatment of Fe-precipitates in industrial and environmental metallurgical processes	A Lewis/J Petersen	Cledwyn Mangunda	University of Cape Town
Modelling of a platinum smelting furnace to study slag bath temperature and freeze lining behaviour	J Zietsman	Nicole Jane Andrew	University of Pretoria
Computational modelling studies on the role of dithiophosphate in the flotation of PGM's	P Ngoepe/ B McFadzean	Masilu Mulaudzi	University of Cape Town/University of Limpopo
Investigating the relationship between fine-grinding and flotation performance using mineralogy	M Becker	Lucy Little	University of Cape Town
Coal Liberation Studies	Q Campbell	Wilmeri Potgieter	North-West University
Modelling and Simulation of High temperature pyrite concentrate oxidation.	J Steyl	Jakolien Strauss	Stellenbosch University
Effect of reactor geometry and model co-ordinates on the leaching performance and its model prediction in leaching of mineral heaps and waste dumps	S Harrison	Michael Odidi	University of Cape Town
Model of Heap Leaching	J Petersen	Petrus van Staden	University of Cape Town

SAMMRI PROJECTS 2014 – 2015

PROJECT TITLE	PROJECT LEADER	STUDENT	INSTITUTION
The thermochemical interaction of thiol collectors and collector mixtures with sulfide mineral surfaces	B McFadzean	Jestos Taguta	University of Cape Town
Recovery of Chromite from PGM Tailings using a Relfux Classifier	Q Campbell	Willem Prinsloo	University of Pretoria
Multiphase Modelling of a Chromite Sinter Strant to Improve Process and Equipment Performance	J Zietsman	Wihann Johannes Leipoldt	University of Pretoria

Improving flotation recoveries of PGMs through electrochemical investigations of selected Platinum Group Minerals	K Corin	Wonder Chimonyo	University of Cape Town
Method to characterize, control, optimize sulfate electrolytes for nickel electro winning with emphasis on stress development and adhesion	R Sandenbergh	Ellen Chiyangwa	University of Pretoria
Extraction of CO2 sequestrable cations from PGM tailings: A precursor to mineral carbonation (seed funding)	J Broadhurst	No Student	University of Cape Town
Development of a dynamic model for the atmospheric leaching of PGM-containing Ni-Cu-Fe-S Peirce Smith Converter matte	S Bradshaw	Petrie Van Wyk	Stellenbosch University
Towards the use of x-ray computed tomography for routine quantitative mineralogy in metallurgical applications	M Becker/J Miller	Mitch Jardine	University of Cape Town/Stellenbosch University
Simulation of process control and fault diagnosis for a Base Metal Refinery high pressure leaching system	D Auret	Jason Miskin	Stellenbosch University

SAMMRI PROJECTS 2013 – 2014

PROJECT TITLE	PROJECT LEADER	STUDENT	INSTITUTION
The development of a simplified system for measuring the passage of particles on and through moving screen surfaces using positron emission particle tracking (PEPT)	J-P Franzidis	Olumide Ogunmodimu	University of Cape Town
The Effect of the Reagent Suite and Ore type on Froth Recovery using a Laboratory column flotation cell	B McFadzean	Tafadzwa Morozva	University of Cape Town
CFD analysis of solid-liquid-gas interactions in flotation vessels	G Akdogan	Mohsen Karimi	Stellenbosch University
The effect of suspended solids under convective conditions on electro won metal morphology.	D Groot	Kagiso Gertrude Matshika	University of Pretoria
Development of a continuous metal recovery process using ion exchange	G Simate	Rhulani Nicolas Ntimbani	University of Witwatersrand

A combination of reflux classification and flotation to treat South African fine and ultrafine coal discards and tails	J-P Franzidis & Q Campbell	Onyinye Iroala	University of Cape Town & North-West University
Improving flotation recoveries of PGMs through Electrochemical Investigations of selected Platinum Group Minerals	K Corin & J Wiese	Margreth Tadie	University of Cape Town
Ammonia based leaching of base metal values from PGM concentrator tailings	J Petersen	Kabwe Julianna Musonda	University of Cape Town
Paste thickening of fine coal tailings.	M le Roux	Moyakhe, Dumisani	North-West University
Warm gas fluidization of fine coal in a dense medium bed.	M le Roux	Jana Van Rensburg & Nardus Terblanche	North-West University
Investigation of the relationship between fine grinding and flotation using mineralogy and rheology.	M Becker, J Wiese & A Mainza	Lucy Little	University of Cape Town
Transport Processes in Heap Bioleaching	S Harrison	Alexy Chekoev	University of Cape Town
Computational modelling studies of Pentlandites	P Ngoepe	Peace Mkhonto	University of Limpopo

SAMMRI PILOT CYCLE 2011 – 2012

PROJECT TITLE	PROJECT LEADER	STUDENT	INSTITUTION
Applications of the Reflux Classifier on Coal	Q Campbell	Izak Theron Smit	North-West University
The development of a froth flotation flow sheet to recover coal and mitigate the acid rock drainage risks associate with coal slurries	J-P Franzidis	No student	University of Cape Town
Using the positron emission particle tracking (PEPT) to study the effect of lifter design on energy consumption on tumbling mills	A Mainza	Motena Takalimane & Hartmut Brodner	University of Cape Town
Modelling coarse grinding and liberation of mineral values	S Bradshaw	Edson Charikinya	Stellenbosch University

Reinforcement learning control of grinding circuits	C Aldrich	Steven Hunter & John Burchell	Stellenbosch University
Water footprints for mining operation	K G Harding	Thami Mkhonza	University of Witwatersrand
Mechanisms of hydrogen peroxide oxidation in leach and precipitation processes	D Groot	Thandiwe Ramahali	University of Pretoria
Suitability of platinum mine tailings as a mineral storage reservoir of anthropogenic CO2 gas emissions	D Reid	No student	University of Cape Town
Computational Modelling for Mineral Processing	P Ngoepe	Peace Mkhonto	University of Limpopo