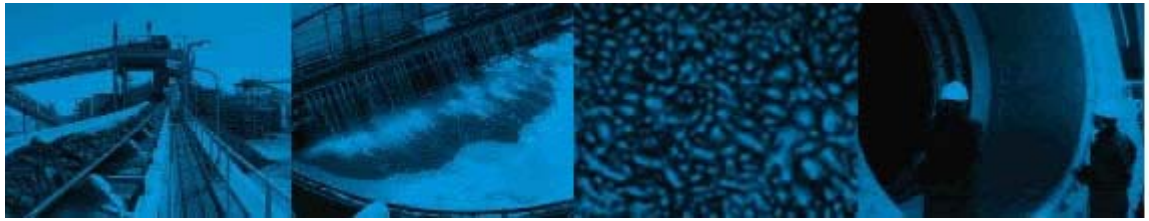



# Latest News

**16 July 2004**

## ARC support provides timely fillip for flotation research

The Julius Kruttschnitt Mineral Research Centre is poised to advance the fundamental understanding of that most difficult aspect of minerals engineering - the flotation process - thanks to an AUD $1.78million grant from the Australian Research Council.

Until now, flotation research undertaken through the AMIRA International P9 project, of which the JKMRC is the major researcher, has been undertaken largely through the support of industry funding.

Official Australian government support through the ARC is a timely fillip for the flotation research team at the JKMRC led by Professor J-P Franzidis and Dr Emmy Manlapig.

According to Professor Franzidis the grant is a 'big win' for the researchers, allowing flotation research engineers to get to grips with some of the fundamentals underlying the JKMRC's successful approach to the engineering modelling of flotation.

The $1,785,778 grant over four years, which commenced at the beginning of July 2004 is the largest ARC grant in Queensland for that funding round, and was the largest component of ARC funding allocated to The University of Queensland.

"It will involve dominantly the JKMRC, with contributions from Professor Graeme Jameson at the University of Newcastle and Professor John Ralston and colleagues at the University of South Australia's Ian Wark Research Institute," Professor Franzidis said.

"A lot of work went into the proposal, and our collaborators in Newcastle and Adelaide played an important role," he said.

Professor Franzidis said that froth flotation is arguably the single most important unit operation in mineral processing, being the method by which metals such as copper, lead, zinc, gold, platinum and many others, as well as fine coal, are recovered from ores worldwide.

"The problem for the mineral processors is that flotation is still not well understood at the fundamental level, leading to significant metal losses and an unacceptably high environmental impact," he said.

"New flotation plants are sometimes inadequately designed or may take several years to commission properly because of this fundamental lack of understanding of the underlying process."

He said that many operating flotation plants run inefficiently for long periods of time because optimisation is done on a trial-and-error basis rather than being based on established scientific principles.

"A major advance in our knowledge of flotation will allow better resource utilisation through improved value recovery and reduced metal losses to tailings, as well as reduced energy consumption and therefore a reduction in greenhouse gas emissions.

"A further benefit would come from more benign disposal practices leading to improved water recovery and dust control through the disposal of coarser waste particles."

The ARC linkage funding will be attached to the AMIRA P9N project which aims to achieve a quantum improvement in the understanding of flotation, delivered as a property-based particle floatability model that can predict flotation response accurately from measurable properties such as particle size, mineral composition, liberation, and hydrophobicity.

Professor Franzidis said the model would be developed from results of controlled laboratory-scale experiments using novel methodologies developed by the JKMRC, the Ian Wark Research Institute and the University of Newcastle on single minerals and samples of ores collected from industry partner sites, and validated using data from fieldwork programs at the same industry partner sites.

"The timing and sequence of implementation of the projects have been selected carefully so that they will, at the same time, address the immediate problems faced by the industry partners and provide the data required to develop the fundamental models."

He said each industrial site-based project planned across four countries -Australia, Brazil, Chile, and South Africa - would contribute to the overall program.

Through AMIRA, ten Australian mining or mining technology services companies have committed support as industry partners to the flotation elements of the program, in the form of financial and in-kind support of postgraduate student training, software development and the fieldwork projects that are essential to setting the research in a practical context.
Professor Franzidis said that with ARC support the researchers could now take the science underpinning flotation engineering to a previously unattainable level.
David Stribley, project coordinator of P9 at AMIRA, said "All of the ARC funded flotation research, along with the significant component of applied work already underway in P9N, will be reported to all P9N sponsors.
"This offers a higher leverage on industry input to the P9N sponsors, already leveraged significantly through the multi-client sponsorship of the 30 companies participating in the project.
"Combined with other participating groups, including University of Cape Town in South Africa and McGill University in Canada, we have now assembled a world leading research team capable of achieving major breakthroughs for the members of AMIRA.," said Mr Stribley.

ENDS

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