

conference reports

Intermag 89
Washington, DC
March 28-31, 1989

Magnetic Separation and Biomagnetism

Five contributed papers were presented at this year's Intermag Conference.

The first paper, presented by Blair B. Emory of Westinghouse Harford Co., Richland, WA., was entitled 'Magnetic Filtration of Power Reaction Radioactive Waste Water'. It described certain advantages of HGMS over traditional precoat or cartridge-type filter systems. The advantages include cost, size reduction, increased efficiency and simplicity of operation.

The second paper by R. Gerber, D. Kelland, both of the University of Salford, U.K., and by M. Takayasu of the M.I.T. Plasma Fusion Center, Cambridge, MA., was entitled 'Collision Effects in Axial HGMS'. This described additional recent calculations on a unique axial HGMS arrangement in which the theoretical modeling was improved by the incorporation of laminar flow concepts and by consideration of the problem of particle-particle collisions in filter performance evaluation.

The third paper, entitled 'Vortex Capture in High Gradient Magnetic Separators at Moderate Reynolds Numbers' was presented by J.H.P. Watson and A.S. Bahaj of the Cryogenics Institute, University of Southampton, U.K. This paper described both experimental and theoretical modeling of rear-side capture and buildup on transversely magnetized fibers in the flow regime $4 < \text{Reynolds Number} < 30$. Some discussion was made of the relevance of these studies to practical magnetic separator design. Here, it was pointed out that the type of capture mechanism described here could lead to improved grades in mineral processing systems without significant reduction in recovery values.

A fourth paper, entitled 'The HGMS Filter Performance Exponential Law' was presented by R. Gerber and P. Lawson of the University of Salford, U.K. Here, a description was given of recent measurements on the systematics of particle recovery in HGMS filters and, in particular, on the length dependence of capture effi-

ciency of matrices.

The final paper, entitled 'Determination of Magnetic Susceptibility of Loaded Micro-Organisms in Bio-Magnetic Separation', was presented by J.H.P. Watson, A.S. Bahaj and D.C. Ellwood, (University of Southampton, U.K.) This paper demonstrated the capability of determining the magnetic volume susceptibility of individual micro-organisms by monitoring (and recording) their trajectories in the localized fields of magnetic fibers on a high-quality video-microscope.