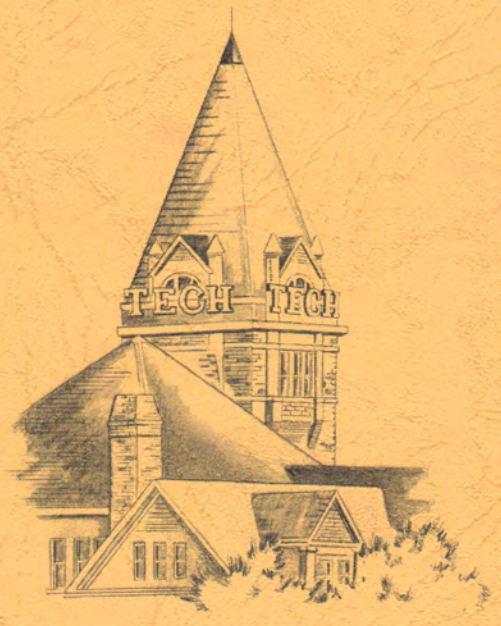
22nd INTERNATIONAL FIELD EMISSION SYMPOSIUM

PROGRAM AND ABSTRACTS



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APPLICATIONS OF AN IMAGING ATOM-PROBE

A. R. Waugh
Dept. of Metallurgy and Materials Science, Univ. of Cambridge
Pembroke St., Cambridge, England

The observation of fine structure in desorption images, and in particular the effect of grain boundaries and precipitate particles on such images (1), clearly shows the need for the metallurgical application of an imaging atom-probe of the type devised by Panitz (2), as a complementary technique to normal atom-probe microscopy.

A stainless steel bakeable imaging atom-probe, with an ultimate vacuum better than $1\ 10^{-11}$ Torr, has been constructed; it is equipped with a specimen manipulator and a specimen-change airlock. The instrument has been used to study the aiming errors to be expected with a conventional atom-probe, and to study the field-evaporation process; it has also been used to study a variety of metallurgical problems of general interest.

1 A. R. Waugh, E. D. Boyes, D. A. Coppell, A. J. Watts, and M. J. Southon 21st Field Emission Symposium, Marseilles, France, 1974.

2 J. A. Panitz, J. Vac. Sci., Technol. 11 206 1974.