attention as a matter of urgency. These are:

The function of co-catalysts (such as bimetallic catalysts)

Exploration of alternative electrolytes

Optimisation of porous electrode structure.

In conclusion, it is hoped that the broad approach taken by the participants of the CEC Research Programme in tackling the problems outlined above will lead to the development of more cost-effective direct methanol fuel cells.

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Fabricating Platinum Disc Microelectrodes

A variety of electrochemical studies depend upon the use of microelectrodes, and if an electrode disc of sub-micron proportions is used ohmic distortion is virtually eliminated. Disc microelectrodes have been produced by encapsulating a fine Wollaston wire in glass and also by vapour deposition, but an easier method has now been reported by K. Itaya, T. Abe and I. Uchida of Tohoku University, Japan (*J. Electrochem. Soc.*, 1987, **134**, (5), 1191–1193).

Anodic electropolishing is used widely to prepare sharp points on needle-like metal specimens that are to be examined by field ion microscopy, and this technique has been adapted to produce microelectrodes. The smoothest surface was obtained using a molten salt of sodium nitrate and sodium chloride (4 to 1, by weight) held at a temperature of 320±10°C; this being contained in a platinum crucible which served as a counter electrode while a platinum wire with a diameter of 65μm was dipped in the melt and anodically polarised by a periodic square wave, the amplitude of which affected both the shape of the pointed tip and the smoothness of the surface.

Tapered platinum wires with radii 100nm have been produced relatively easily; such tips are then encapsulated in epoxy resin, or a similar sealing material, and the electrode surface exposed by cutting through the composite with a diamond knife attached to an ultramicrotome. It is suggested that this method could be extended to iridium and gold, and even to carbon, using an alkali solution.