

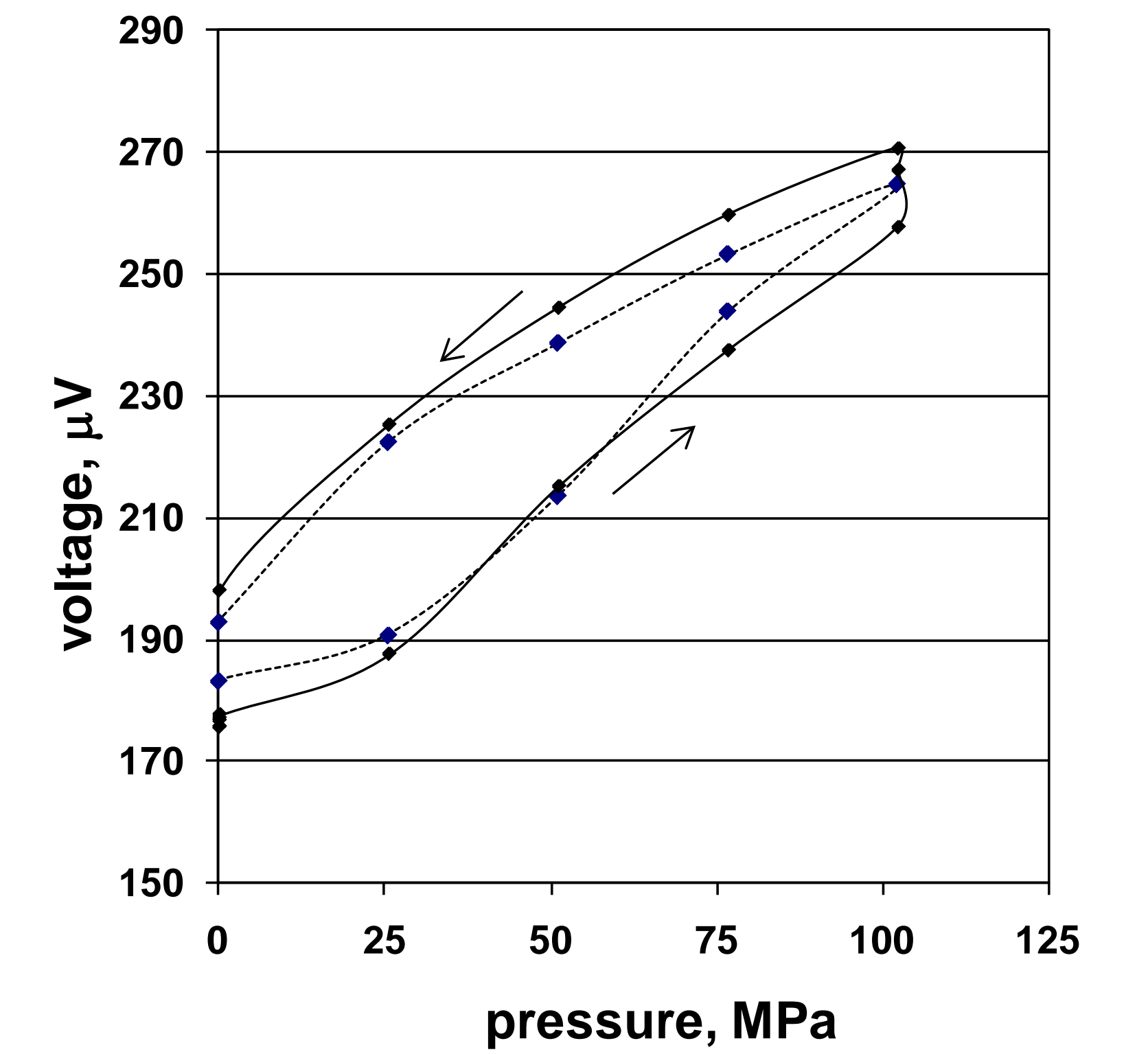
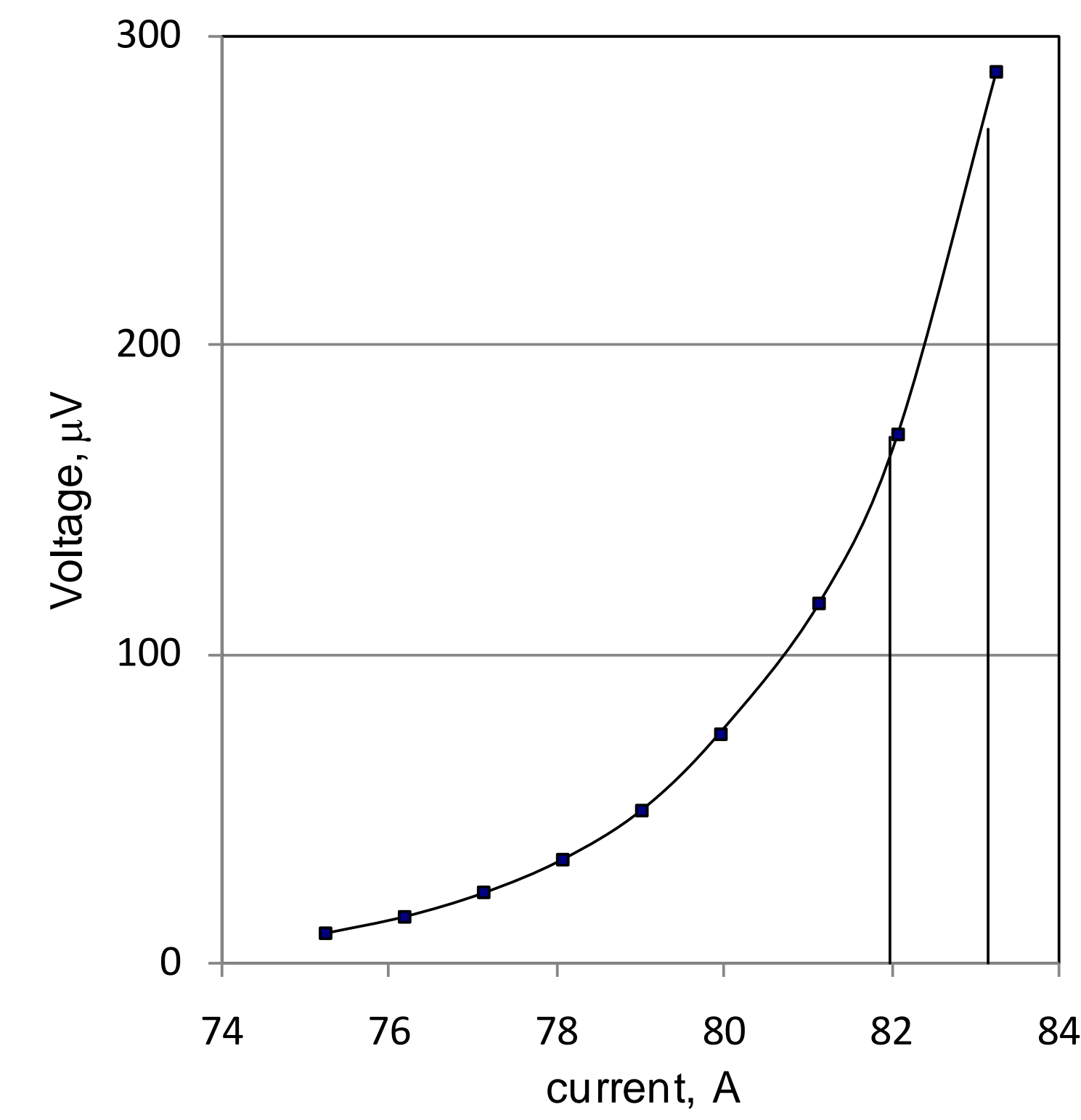
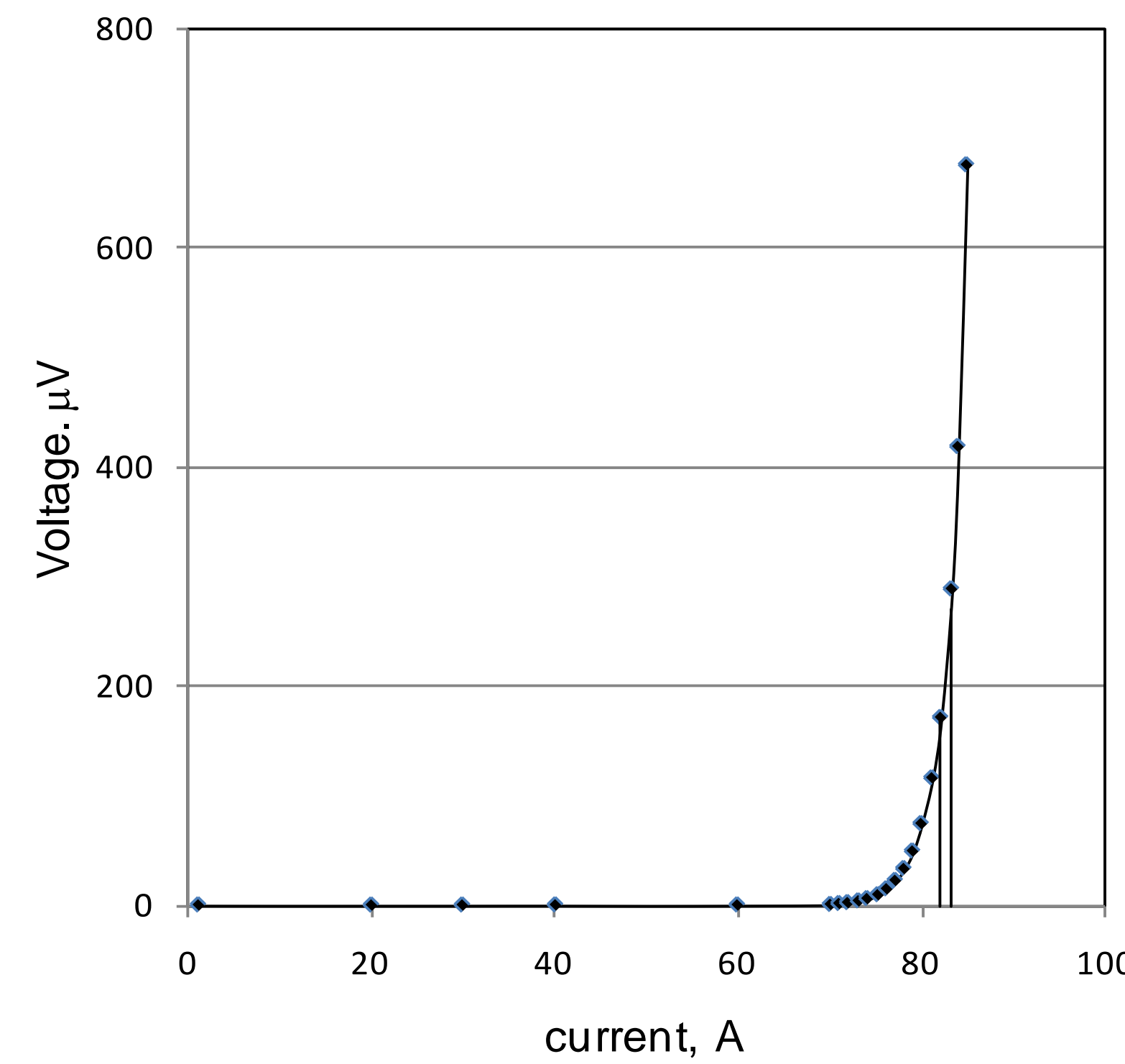
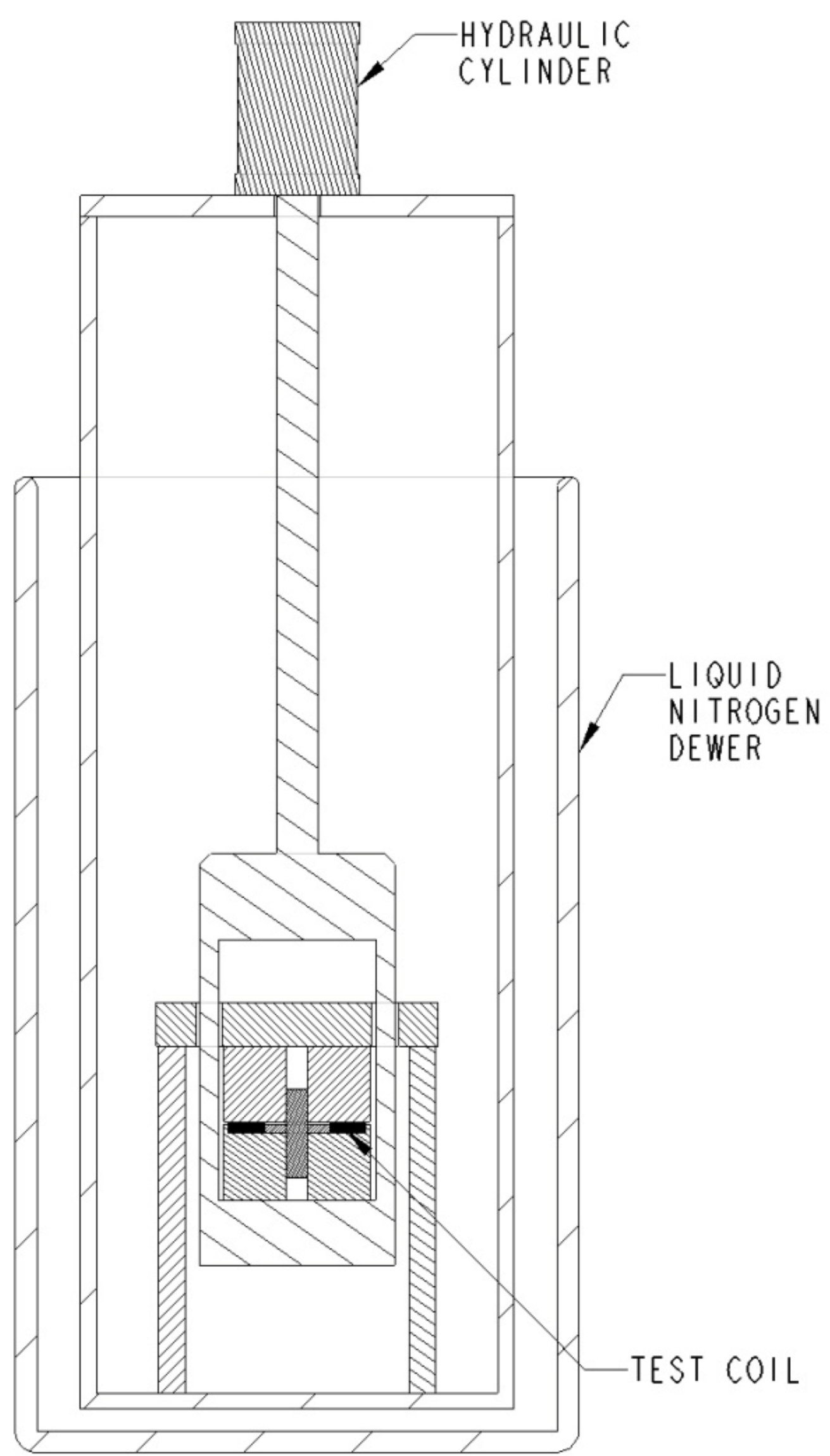
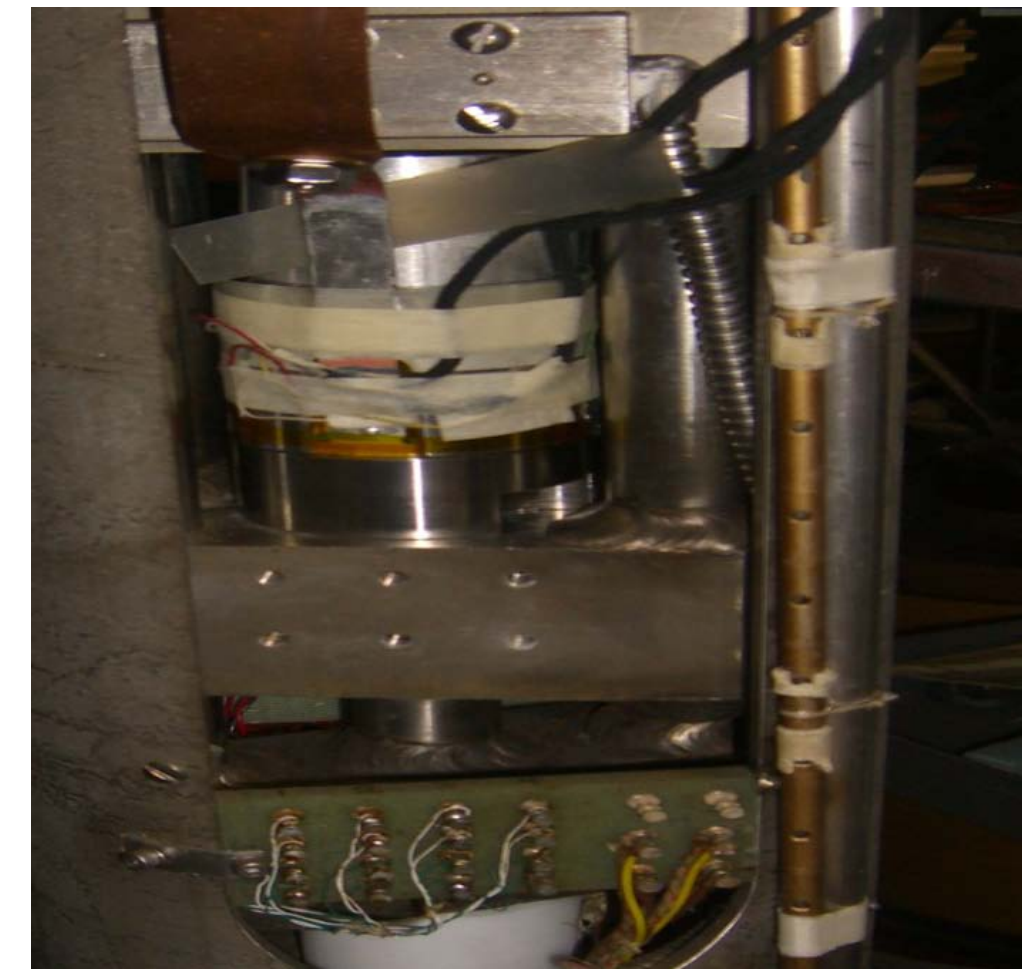
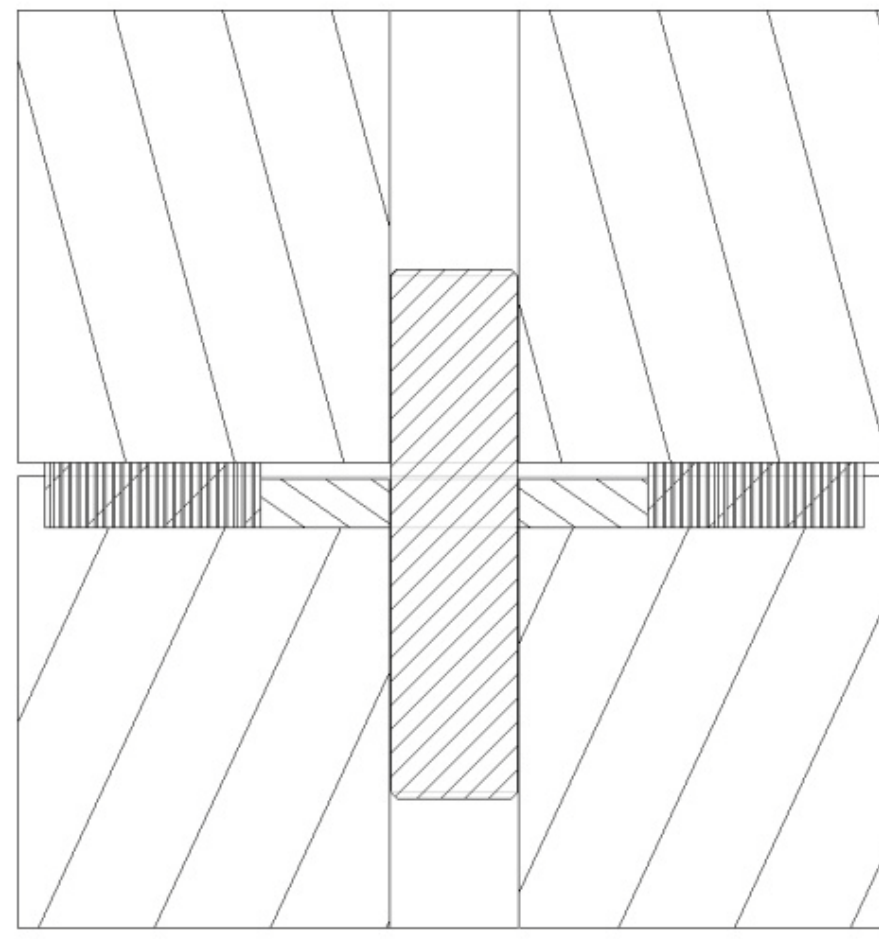
THE EFFECT OF AXIAL STRESS ON YBCO COILS*

W.B. Sampson, M.D. Anerella, J.P. Cozzolino, R.C. Gupta, Y. Shiroyanagi BNL, Upton NY, U.S.A. and E. Evangelou, Bronx High School of Science, Bronx, NY, U.S.A.



Abstract

A spiral wound “pancake” coil made from YBCO coated conductor has been stressed to a pressure of 100MPa in the axial direction at 77K. In this case axial refers to the coil so that the force is applied to the edge of the conductor. The effect on the critical current was small and completely reversible. Repeatedly cycling the pressure had no measureable permanent effect on the coil. The small current change observed exhibited a slight hysteretic behaviour during the loading cycle.



CONCLUSIONS

Superpower YBCO pancake coils tolerate simulated coil to coil forces very well, at least up to 100MPa. The small changes in critical current observed seem to be completely reversible and there was no indication of susceptibility to multiple cycles. Additional experiments are planned to higher stress levels to establish a limit on inter-coil forces.

*Work supported by DOE contract DE-AC02-98CH10886.

#Corresponding author: wampson@bnl.gov.