

## II. DEVELOPMENTAL ELECTRON OPTICS LABORATORY

### Academic and Research Staff

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### Graduate Students

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#### 1. ULTRAHIGH-SENSITIVITY ELECTRON OPTICAL DETERMINATION AND LOCATION OF IMPURITY ATOMS IN Si AND GaAs

Joint Services Electronics Program (Contract DAAB07-76-C-1400)

John W. Coleman

During the past year we have used specimens of gold-on-carbon substrates to calibrate our instrumentation. We have obtained images of these specimens due to secondary electrons, and at present we are trying to photograph them. We also have specimens on hand of Si-Al on Si, Si-Al on Ta, and P glass on Si. A chronic major problem has been vacuum, which has precluded until now the predominant usage of Auger electrons for producing the images. Plans are now under way to change over to an oil-free system; when this is complete, we will be able not only to produce Augers but also to install our channeltron-array image intensifier, which will help us to see and photograph the low-level intensity images.

