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Passivation of GaSb Infrared Sensors

Applications

- Medical
- Military and Law Enforcement
- Astronomy
- Manufacturing



Infrared



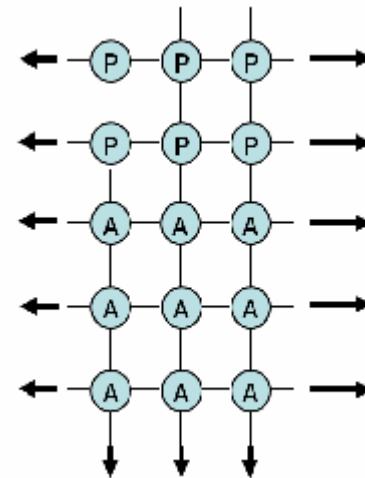
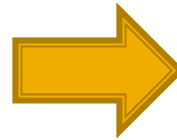
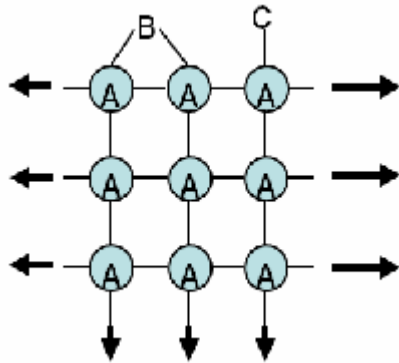
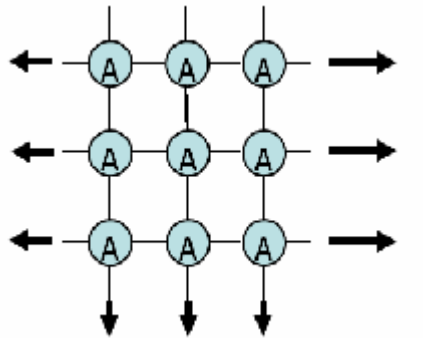
Visible Light

GaSb Infrared Photodetectors

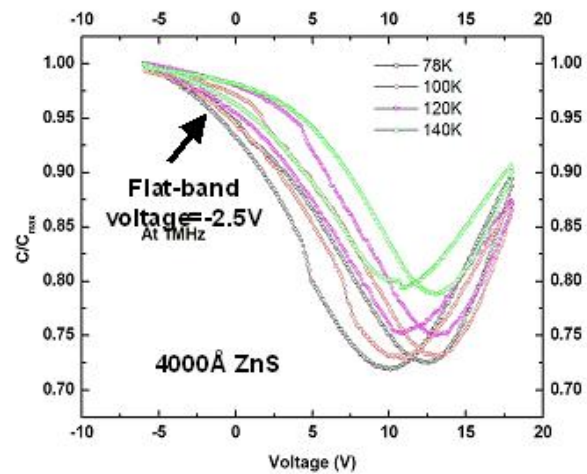
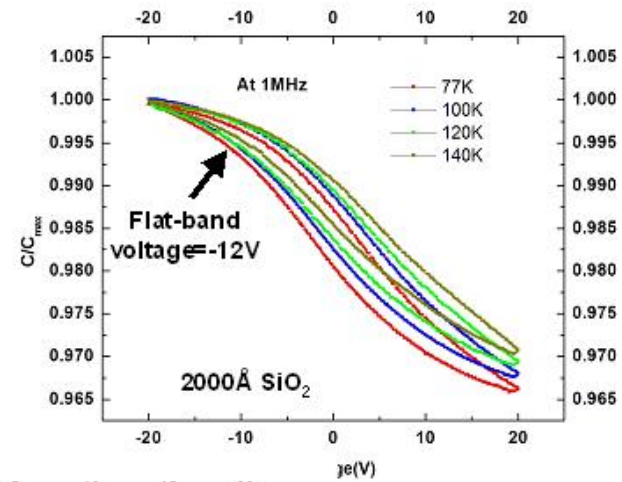
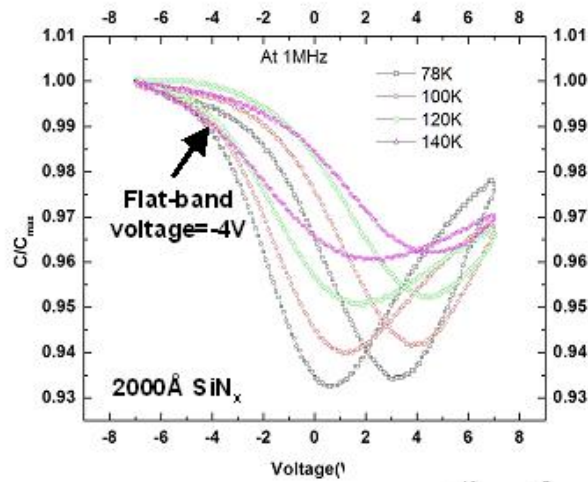
- Mid-wavelength Infrared (MWIR) Photodetector (3-5 μm)
- Useful in thermal imaging, and gas analysis in pollutant detection

Passivation

Dangling Bonds



Passivation Cont.

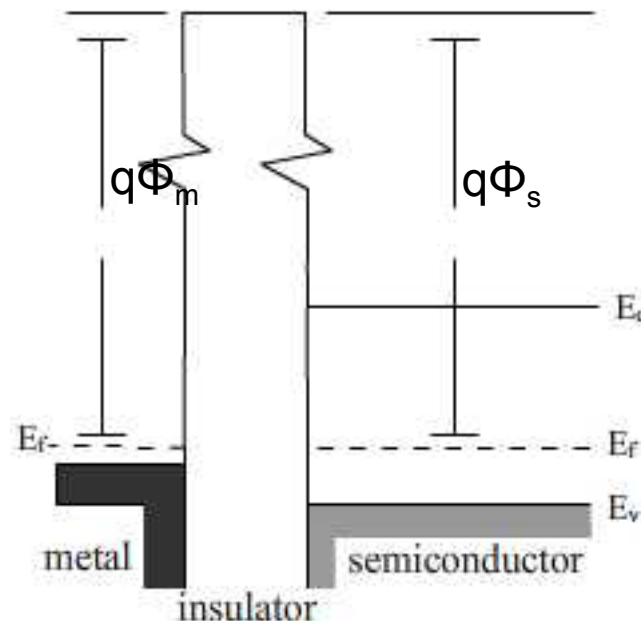


Experiment

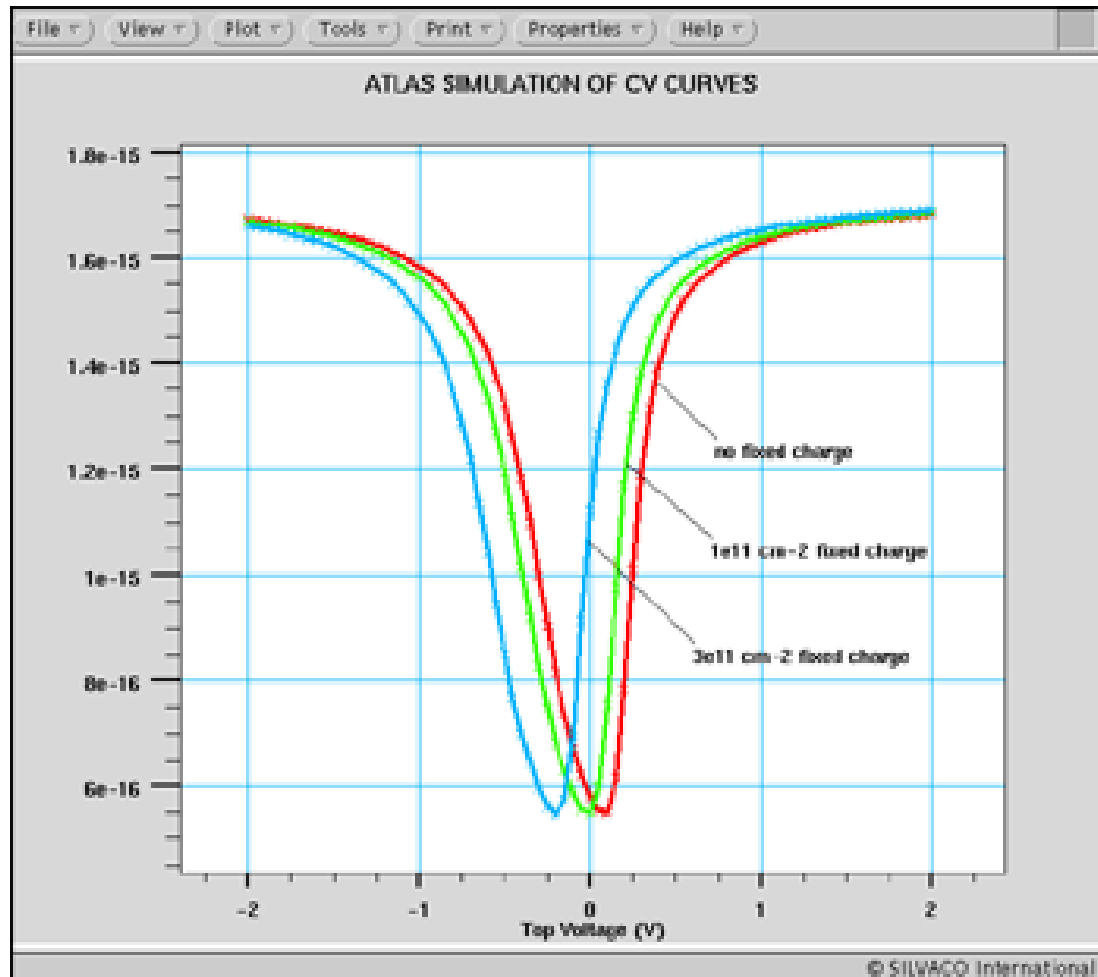
- 3 chips are cleaned and etched.
- Chip A receives BOE treatment.
- Chip B receives ammonium sulfide treatment.
- Chip C receives no further treatment.

Experiment continued.

- All 3 chips are made into MIS structures.
- Capacitance-Voltage measurements are then run on each chip.



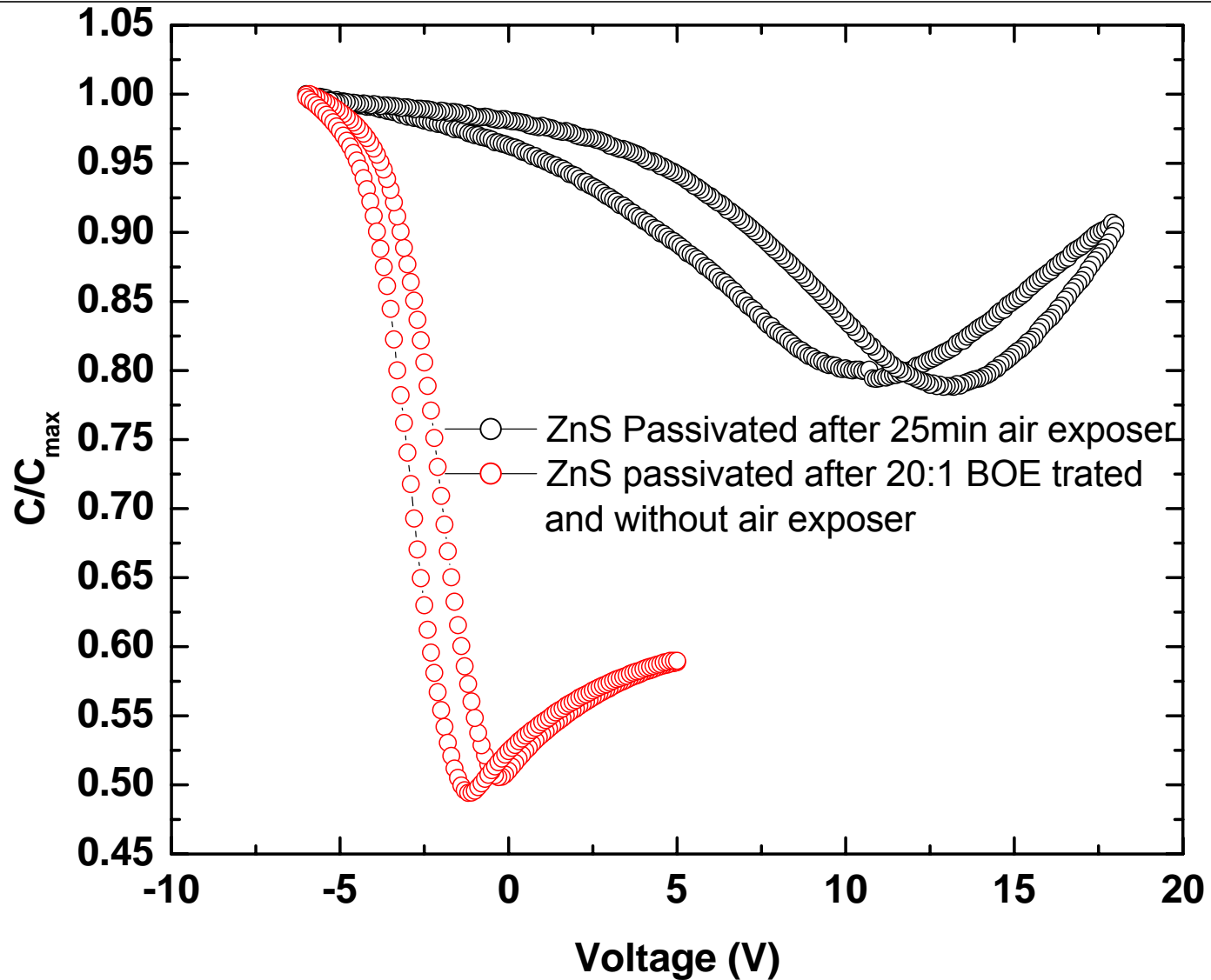
Capacitance Voltage Measurements



Instrument



Results



Conclusion

- The BOE treated chip displays the best performance.
- Further testing must be done on other passivation techniques.

Acknowledgements

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