

## LOCALIZED HEATING, MELTING, AND DRILLING OF SILICON

P. Livshits, V. Dikhtyar and E. Jerby\*, Faculty of Engineering, Tel Aviv University, Ramat Aviv 69978, Israel

The microwave drill [1] is used in this study for a localized heating of silicon plates, up to the melting point. The paper presents the experimental setup, including the heating device and the temperature measurement techniques. The experimental results show a higher rate of local temperature increase compared to other known methods. This heating method enables localized thermal processes, jointing, welding, and even drilling of >0.1-mm diameter holes in silicon for MEMS applications.

### REFERENCES

1. E. Jerby, V. Dikhtyar, O. Aktushev, and U. Groszlick, "The Microwave Drill," *Science Magazine*, Vol. 298, pp. 587-589, Oct. 18, 2002.

Correspondence: [jerby@eng.tau.ac.il](mailto:jerby@eng.tau.ac.il)