

# TEMPERATURE DEPENDENT DIELECTRIC FUNCTION OF CUI THIN FILMS

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We present optical and structural properties of CuI thin films deposited by DC-sputtering at temperatures varying from 55°C to 310°C on c-sapphire substrate.

Scanning electron microscopy scans reveal a smooth surface morphology for films grown at temperatures above 60°C and large thickness inhomogeneity for films grown at lower temperatures. X-ray diffraction reveals good crystal quality for growth temperatures above 200°C.

The main features in the DF (see Fig. 1.) were assigned to exciton-related optical transitions at various critical points in the Brillouin zone. The observed energy separation of the split-off band is around 630 meV and is consistent with previous investigations [2].

The observed transitions reveal non-monotonic temperature dependence of the energy [1] as well as strong screening for excitons related to higher critical points.

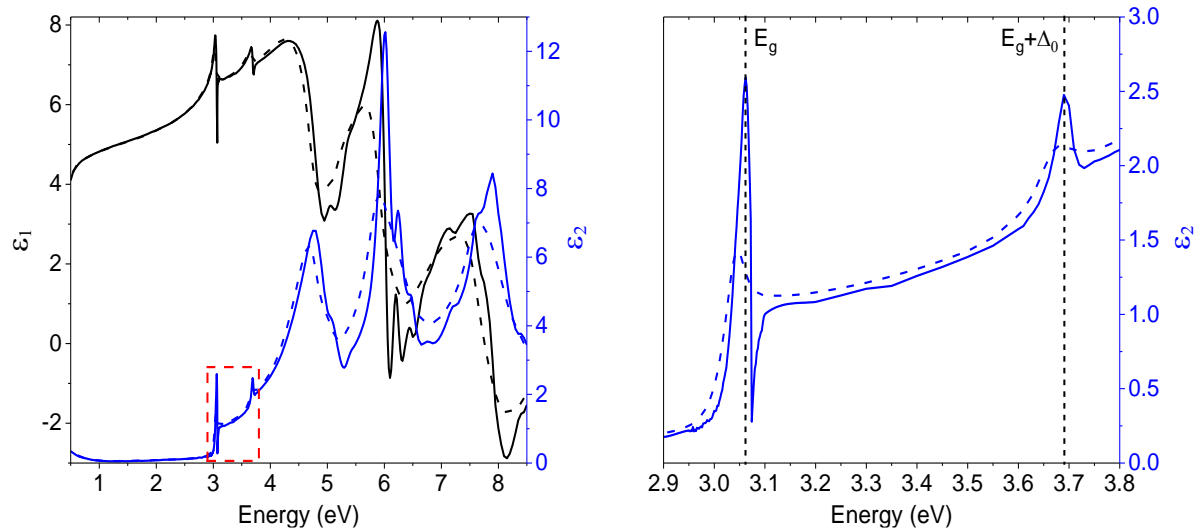


Fig. 1. Real (black) and imaginary part of dielectric function of the investigated CuI film at 10 K (solid) and at 300 K (dashed).

*Keywords:* Dielectric function; CuI;

## References

- [1] J. Serrano, Ch. Schweitzer, Physical Review B 65 (2002)
- [2] M. Grundmann, F.-L. Schein, Physica Status Solidi A 210 (2013)