

**Himpsel *et al.* Reply:** We have already reported the effect that Chen and Sette describe (see Rieger *et al.*<sup>1</sup>). This effect is small compared with the structures seen for thin films (see Fig. 1 and Ref. 1). The thin-film features cannot be due to a bulk effect alone, as proposed by Chen and Sette, because the intensity depends on film thickness and on the light polarization (bulk  $\text{CaF}_2$  is isotropic).

In particular, the bulk peaks *F* and *G* vanish completely for a monolayer (Fig. 1, bottom) whereas the interface features *A–E* are still present.

A detailed account of bulk, surface, and interface effects at the Ca *2p* edge will be published elsewhere.<sup>3</sup>

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<sup>1</sup>D. Rieger, F. J. Himpsel, U. O. Karlsson, F. R. McFeely, J. F. Morar, and J. A. Yarmoff, *Phys. Rev. B* **34**, 7295 (1986). Specifically, see a paragraph starting at the bottom of p. 7301.

<sup>2</sup>F. J. Himpsel, U. O. Karlsson, J. F. Morar, D. Rieger, and J. A. Yarmoff, *Phys. Rev. Lett.* **56**, 1497 (1986).

<sup>3</sup>F. J. Himpsel and J. A. Yarmoff, to be published.

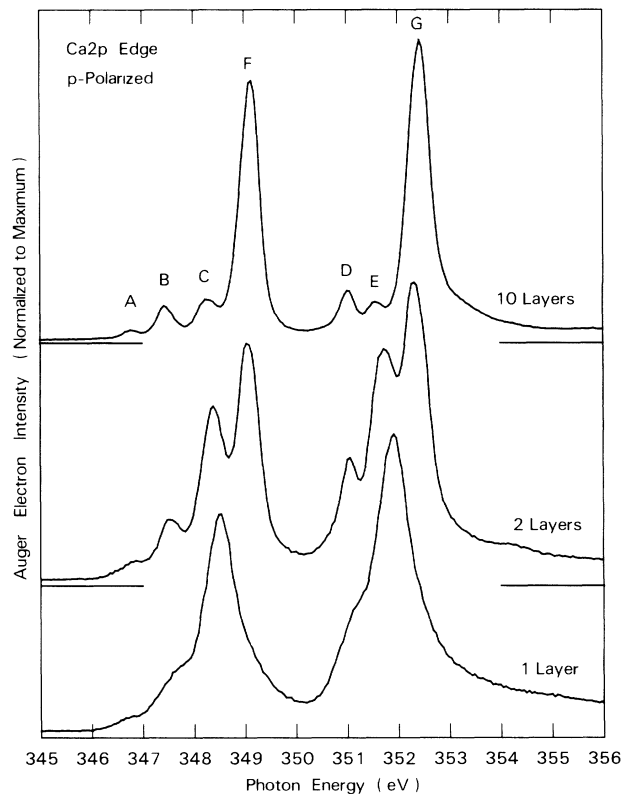


FIG. 1. Near-edge x-ray absorption spectra for  $\text{CaF}_2$  films grown epitaxially on Si(111). The features *A–E* increase relative to the bulk peaks *F* and *G* for thinner films. For a monolayer, the bulk peaks are absent while structures *A–E* are still seen. This thickness dependence (and the polarization dependence reported in Refs. 1 and 2) rules out an explanation of *A–E* by a pure bulk effect as proposed by Chen and Sette.