

## INVESTIGATION OF THE B' STATE OF CaF and CaCl

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The B'<sup>2</sup>Δ states of CaF and CaCl have been excited directly, under specific experimental conditions, through the B'<sup>2</sup>Δ-X<sup>2</sup>Σ<sup>+</sup> forbidden transition, and detected by collecting the A-X or B-X fluorescence. Rotational analysis of the B'-X(0-0) band provides accurate molecular parameters in good agreement with those obtained previously by Verges et al.<sup>a</sup> in the case of CaF. For CaCl, the B'<sup>2</sup>Δ state, observed for the first time lies at 19232 cm<sup>-1</sup> above the ground state, in excellent agreement with its position (19319 cm<sup>-1</sup>) predicted by the Ligand Field Theory. The spin-orbit coupling constant A<sup>SO</sup> for CaF and CaCl are close, indicating that the molecular structure is mainly governed by the Ca<sup>+</sup> metal ion and only slightly by the ligand. Several excitation and deexcitation mechanisms, which may contribute, will be discussed.

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<sup>a</sup>Verges, Effantin, Bernard, Toupouzkhian, Allouche, d'Incan and Barrow, *J. Phys. B., At. Mol. Opt. Phys.*, 26, 279-284 (1993)