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## Interpretation of Switching Properties of InGaSe2 Single Crystal

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### Abstract

The goal of this paper is to present experimental results of the switching effect and analyze qualitatively the influence of various factors, such as temperature, light illumination and sample thickness on switching behavior of the high quality ternary chalcogenide semiconductor InGaSe2. Current-controlled negative resistance of InGaSe2 single crystals has been observed for the first time. It has been found that indium gallium diselenide single crystals exhibit bistable or memory switching. The switching process takes place with both polarities on the crystal and has symmetric shapes. Current voltage characteristics of Ag-InGaSe2-Ag structures exhibit two distinct regions, high resistance OFF state and low-resistance ON state having negative differential resistance. InGaSe2 is a ternary semiconductor exhibiting S-type I-V characteristics. The specimen under test showed threshold switching with critical field of the switching being 10(3) V/cm at room temperature.

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