

## **Improved Divalent-Ion-Doped Single Crystal Alkali Halide Scintillators**

### **Disclosure Number**

201603670

### **Technology Summary**

Alkali halide crystals such as LiI, NaI, or CsI that are activated with divalent rare-earth ions such as Eu(2+) have not been widely used as scintillators for radiation detection applications due to their incompatibility with the incorporation of divalent activator ions above 0.5% due to the formation of so-called Suzuki Phase precipitates, which scatter the scintillator light thereby adversely affecting detection of radiation and/or thermal neutrons. The invention comprises single crystal alkali halide scintillators doped with >5% divalent-ions but having essentially no Suzuki Phase precipitates incorporated therein, thereby enabling their utility as radiation and/or thermal neutron detectors.

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