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TiNi Alloy as a Highly Sensitive Bolometer Material

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We have conducted a comparative study of the characteristics of thin films constructed from nickel and alloy of titanium nickelide exposed to optical radiation. We observed a sevenfold superiority in the sensitivity of the TiNi samples over that of the Ni samples under identical experimental conditions when the samples were of comparable overall dimension. A hypothesis pertaining to the advantage of using titanium nickelide (as opposed to other technologically applicable metals and alloys) for the sensitive element in a bolometer has been confirmed. We have determined the dependence of relevant parameters of thin film titanium nickelide on the characteristics of preliminary thermomechanical processing of the alloy.

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