

Abstract Submitted
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Electrical Resistive Heaters for Magnetically Sensitive Instruments MICHAEL BULATOWICZ, Northrop Grumman Electronic Systems — US Patent 8,138,760 “Temperature System with Magnetic Field Suppression” describes design concepts and examples for development of electrical resistive heaters and temperature detectors suitable for temperature control of the alkali vapor cells of magnetically sensitive atomic instruments such as spin-exchange relaxation free (SERF) magnetometers. This is achieved through careful manipulation of electromagnetic multi-pole moments in the design of these resistive heaters for substantial self-cancellation of electrically generated magnetic fields. The magnetic performance of electrical resistive heaters produced according to these design principles and directly attached to a rubidium vapor cell has been demonstrated to cause no measurable degradation of the performance of a SERF magnetometer exhibiting noise below 2 femto-Tesla per square root Hz.

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