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**Field desorption as the basis for a neutron generator ion source**

DAVID CHICHESTER, Idaho National Laboratory, KRISTIN HERTZ, Sandia National Laboratories, PAUL SCHWOEBEL, University of New Mexico, CHRIS HOLLAND, SRI Inc., JOHN BRAINARD, Sandia National Laboratories — Compact accelerator neutron generators used in research and industry rely upon the creation of a plasma to generate deuterium and/or tritium ion beam beams. As an alternative, research is currently underway to examine the feasibility of using a plasma-free ion source using field desorption as the ion generation mechanism. Making use of standard MEMS manufacturing techniques in conjunction with new design innovations, we are developing silicon field desorption micro arrays which incorporate metallic nano-emitter tips capable of desorbing hydrogen species ions under extreme electric fields. Research is underway to understand the field desorption characteristics of these arrays and assess their applicability for use within sealed neutron tubes. This presentation will briefly describe the technology and illustrate it's potential for use in neutron generators.

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