

Development of a Hand-Portable Mass Spectrometer for Homeland Security and Nonproliferation/Safeguards Applications*

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We are developing a fieldable, hand-portable mass spectrometer based on miniature ion trap technology. The system uses a battery-powered turbo pump backed by a scroll pump. Control of the instrument, data conversion, and spectral display are via a hand-held personal digital analyzer. Nominal weight is 10 kg and the system consumes 75 W, with a rechargeable battery life of approximately 1 hr. Applications being targeted are analysis of CW agents and volatile organic compounds in air with a membrane inlet system and isotopic analysis of UF₆.

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