

TWO-STATION AUTOMATIC SIEVERTS-TYPE APPARATUS

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A new concept of prototype of two-station automatic sieverts-type apparatus is shown in this poster. Fully automated device is designed in a way that allows fully independent parallel measurements of two samples in terms of their hydrogens storage properties in temperature range from ambient to 450°C and pressures from 0.01-10 MPa. The main advantage of this design is its compactness (two devices in one movable cart) and low cost of manufacturing due to properly shared expensive components such as turbomolecular vacuum pumps, pneumatic control components, gas delivery lines, high-quality frame and insulation. The general overview of the machine is shown as well as more detailed views. Exemplary graphs showing its extraordinary temperature stability and basic functions are provided and described.

	<p>Dariusz Siemiaszko, PhD – Engineer and designer, researcher with 15+ years of experience with powder metallurgy, especially pressure-assisted induction sintering (PAIS) of intermetallic alloys. Expert in data curation and uncertainties estimation. Effectively engaged in designing and prototyping of devices for hydrogen storage in solid state materials.</p>
	<p>LTC Paweł Płatek, PhD - a researcher with 15+ years of experience in implementation of CAD/CAE engineering systems in practical applications, usage of advanced numerical modeling techniques based on the FEM, DEM, SPH methods. Expert in additive manufacturing and mechanical characterization of mechanical properties of materials under dynamic loading conditions.</p>
	<p>Prof. Jacques Huot is UQTR and member of HRI since 2004. His expertises are solid-gas interactions, metal hydrides, and material characterization. His research is on new metal hydrides for hydrogen storage and hydrogen embrittlement.</p>
	<p>LTC Marek Polański, PhD, DSc – a researcher with 15+ years of experience in mechanochemistry and synthesis of solid-state hydrogen storage materials (SSHSM). His research focuses on magnesium-based materials for hydrogen storage as well as the design of new synthesis and characterization techniques of SSHSM.</p>