

**PRESSURE INDUCED MAGNETIC PHASE TRANSITION IN  
RMn<sub>6</sub>Sn<sub>6-x</sub>In<sub>x</sub> SOLID SOLUTIONS (R = Y, Lu, Sc)**

**R. Duraj<sup>a</sup> and A. Szytula<sup>b</sup>**

<sup>a</sup>Institute of Physics, Technical University of Cracow, Podchorazych 1, 30-059 Cracow,  
Poland

<sup>b</sup>Institute of Physics, Jagiellonian University, Reymonta 4, 30-059 Cracow, Poland

The three HfFe<sub>6</sub>Ge<sub>6</sub>-type compounds: ScMn<sub>6</sub>Sn<sub>5.45</sub>In<sub>0.55</sub>, YMn<sub>6</sub>Sn<sub>5.65</sub>In<sub>0.35</sub> and LuMn<sub>6</sub>Sn<sub>5.1</sub>In<sub>0.9</sub> are characterized by similar magnetic properties. At ambient pressure, they order ferromagnetically about the room temperature ( $293 \leq T_C \leq 356K$ ) and undergo a ferromagnetic to helimagnetic transition upon cooling ( $235 \leq T_t \leq 327K$ ). This paper reports our study on the influence of hydrostatic pressure up to 1.5 GPa on magnetic properties of these solid solutions at low temperature. Increasing hydrostatic pressure under isothermal conditions yields a phase transition from helimagnetic to ferromagnetic order. The obtained (P, T) magnetic phase diagrams are discussed and compared with the corresponding properties of the isotypic compounds RMn<sub>6</sub>Ge<sub>6-x</sub>Ga<sub>x</sub> (R = Y, Lu, Sc).

9.7 cm

13.4 cm

**Subject category :**

3. Magnetic Structure and Dynamics

**Presentation mode :**

poster

**Corresponding author :**

R. Duraj

**Address for correspondence :**

Institute of Physics,  
Technical University of Cracow,  
Podchorazych 1, 30-059 Cracow, Poland

**Email address :**

puduraj@cyf-kr.edu.pl