

**SYSTEMATIC STUDIES ON THE NEW TETRAGONAL  $RCu_2Ga_2$   
( $R = La, Ce, Pr, Nd$  and  $Gd$ ) SINGLE CRYSTALS**

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9.7 cm

Single crystals of tetragonal  $RCu_2Ga_2$  ( $R = La, Ce, Pr, Nd$  and  $Gd$ ), with  $ThCr_2Si_2$  type structure (space group  $I4/mmm$ ), have been grown by high temperature solution growth technique using Ga as flux. Heat capacity, magnetization and electrical resistivity measurements were recorded along [100] and [001] directions. Except  $LaCu_2Ga_2$ , the remaining compounds order magnetically.  $CeCu_2Ga_2$  and  $PrCu_2Ga_2$  undergo ferromagnetic transitions;  $NdCu_2Ga_2$  shows antiferromagnetic transition.  $GdCu_2Ga_2$  seems to possess spin glass and antiferromagnetic ordering behaviour. These measurements signify the presence of substantial contribution from the crystal electric field splitting of energy levels. Further we have also performed measurements of electron spin resonance (ESR) on the high quality single crystals of  $GdCu_2Ga_2$  in paramagnetic and antiferromagnetic phases.

13.4 cm

**Subject category :**

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