# RELATION BETWEEN STRUCTURE AND MAGNETIC PROPERTIES OF MICROSTRUCTURED $PrAlO_3$

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The influence of structuring the matter on the magnetic properties have been studied in the case of praseodymium-aluminium perovskite ($PrAlO_3$). To find differences, both the $PrAlO_3$ crystal and its structured version in the form of a micron-sized and submicron-structure, have been investigated and compared. It is shown that proper structuring the material and embedding it in a matrix of another material, in this case $PrAl_{11}O_{18}$, leads to suppression of low temperature phase transitions in a $PrAlO_3$. This behavior is related to $PrAl_{11}O_{18}$ matrix, which mechanically restricts expansion of the $PrAlO_3$ microrods and thus suppresses the phase transitions.

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