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## **Upon the squareness factor of permanent magnets – definitions and its importance**

Apresentador: Rubens Nunes Faria

Autores (Instituição): Périgo, E.A.(Asea Brown Boveri); Fim, R.G.(Alkimat Tecnologia); Faria, R.N.(Instituto de Pesquisas Energéticas e Nucleares);

Resumo:

The hysteresis loop shape has been a topic of interest within the area of engineering magnetic materials ranging from nano to macro scales. Ideally, the shape of the demagnetization curve of a permanent magnet is squared, with a squareness factor equals to one ( $SF = 1$ ). However, the real permanent magnets present an almost squared loop with  $SF > 1$ . The relationship between the shape of demagnetization curve of rare earth-based permanent magnets and their microstructural features (grain size, size distribution, grain boundary phases and crystallographic orientation), chemical composition and processing is elucidated in this work. The literature related to its terminology, quantification propositions, significance and relationship among proposed methods is revisited.