

Ref. 124 "INVESTIGATION OF PbTe/Pb_{1-x}Eu_xTe EPITAXIAL LAYERS GROWN BY MBE ON BaF₂ (111) SUBSTRATES". Antonio Yukio Ueta¹, Gunther Springholz² and Günther Bauer², 1)-INPE/LAS - São José dos Campos - SP, 2)- Institute of Semiconductor Physics/Johannes Kepler University - Linz - Austria.

Epitaxial layers of PbTe/Pb_{1-x}Eu_xTe grown by MBE on BaF₂ (111) substrates are investigated in this work. It is shown that the nucleation and coalescence of the PbTe layers can be improved by the deposition of 4 monolayers of EuTe on such substrates. The density of threading dislocation decreases rapidly with increasing layer thickness due to annihilation processes, giving rise to a dramatic increase of the 10 K electron mobilities in the layers. N-type doping studies of PbTe and Pb_{0.96}Eu_{0.04}Te epitaxial layers were carried out by using Bi as dopant and supplied in the form of Bi₂Te₃. Hall effect measurements were performed for Bi concentration varying from $1 \cdot 10^{17}$ to $5 \cdot 10^{21}$ cm⁻³, indicating a unity doping coefficient for Bi concentrations up to $5 \cdot 10^{19}$ cm⁻³. A systematic investigation of MBE growth and properties of Pb_{1-x}Eu_xTe epitaxial layers was done for Eu concentration varying from 0 to 100%. A metal-to-insulator transition was observed in magnetotransport measurements at low temperatures for $x \approx 9.5\%$. These measurements show a clear evidence for the presence of weak localization phenomena for Eu concentration varying from 8 to 15%.

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Ref. 125 "SINTERIZAÇÃO DO FE PURO POR PLASMA DC AR-H2 EM REGIME ANORMAL MONITORADO ATRAVÉS DA ESPECTROSCOPIA DE EMISSÃO. V.J. Batista, M.J. Cinelli, M. Mafra, J.L.R. Muzart, A.L. Klein, LabMat- Laboratório de Materiais/UFSC, Florianópolis, SC.

Este trabalho apresenta o desenvolvimento da etapa de sinterização do Fe puro em um reator de plasma operando com uma descarga DC em regime anormal em misturas Ar-H₂. Para tanto, realizou-se um delineamento experimental a fim de determinar o melhor conjunto de parâmetros da descarga que permitissem atingir a temperatura de 1150 °C conveniente ao processo. Por outro lado, medidas sistemáticas utilizando-se a técnica de espectroscopia de emissão são efetuadas. Em particular, as evoluções da raia H(a) $\lambda = 656,3$ nm nos possibilita determinar a influência do hidrogênio atômico na densificação superficial das amostras sinterizadas.

Ref. 126 "RECENT PROGRESS IN FRINGE ANALYSIS FOR OPTICAL METROLOGY", Mitsuo Takeda, The University of Electro-Communications, Chofugaoka, Chofu, Tokyo, Japan

The last decades have seen great progress in fringe-based optical metrology. The purpose of the talk is to review the progress in fringe analysis from a methodological point of view, and to provide a perspective on its current trends and future directions. Fringe-based optical metrology is generally composed of two major process, i.e, (a) fringe generation by using optical systems such as interferometers, and (b) fringe