

Fig. 1. For growths at a substrate temperature of 300 °C the RHEED pattern is a streaky pseudo-(4 x 2). HRXRD spectra summary of GePb thin films grown at substrate temperature of 150, 200, 250, 300, 400 and 500 °C (from bottom to top, high to lowest temperature). Samples grown at 500 and below 200 °C exhibit no indication of GePb thin film. Pendellösung fringes are found for samples grown between 250 to 300 °C, and most pronounced at 300 °C. SEM imaging of GePb thin films shows formation of Pb into either droplets or trapezoidal islands.

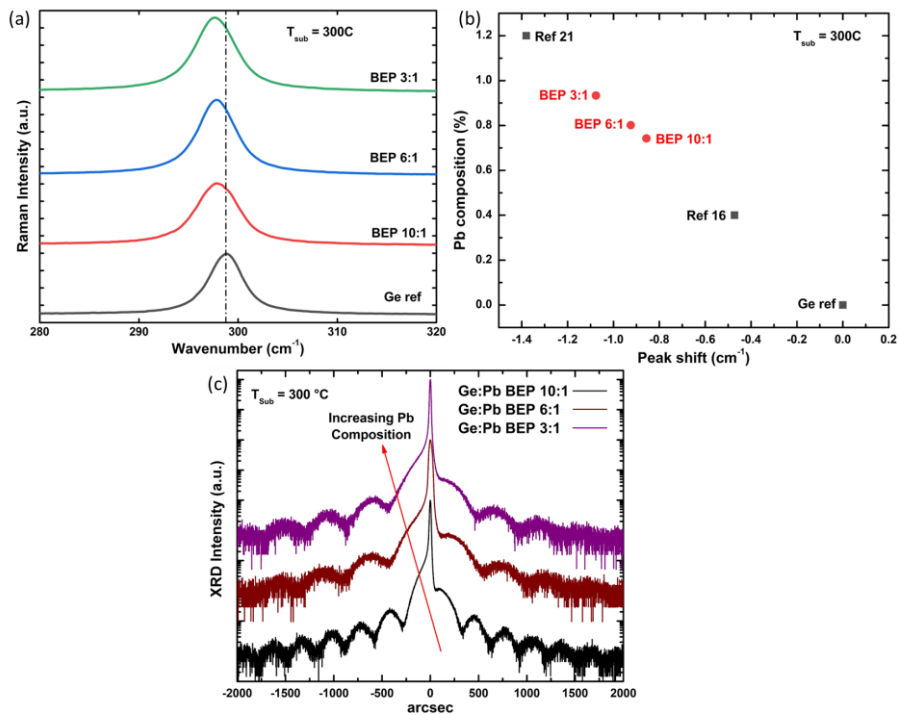


Fig. 2. (a) Room temperature Raman spectrum with 532 nm excitation for GePb alloy grown using different BEP ratios; the dashed line shows the peak position of the Ge reference sample. (b) The linear fitting of the relation between the peak shift and Pb composition using previous epitaxial GePb alloy data.^{16,21} The estimated Pb compositions of samples using the Raman peak shift, marked by red circles, increases slightly for a significant increase in Pb flux. (c) HRXRD results of GePb thin films grown at 300 °C with increasing Ge:Pb BEP ratio of 10:1 to 3:1. [3]

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