Fabrication of dry etched and subsequently passivated laser facets in GaAs/AlGaAs

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The aging behavior of edge emitting laser diodes based on GaAs/AlGaAs is investigated by comparing devices with facets that are alternatively cleaved or dry etched and consecutively treated with H_2S. In this work we demonstrate that an *in situ* exposure to H_2S gas is not sufficient to prevent ageing but an additional plasma treatment is rather required to obtain comparable ageing results to lasers with cleaved facets. [DOI: 10.1116/1.1786307]