

## **Compact light couplers for III-V membrane devices laterally grown on SOI**

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We report a highly compact butt couplers for III-V membrane devices laterally grown on SOI platform using the lateral aspect ratio trapping (LART) method. Leveraging the characteristics of sub-wavelength gratings (SWG), the gradient index butt coupler features a low coupling loss of just 0.5 dB across the entire telecom band and a length of just 7.6  $\mu\text{m}$ . This coupler is compatible with standard 220 nm SOI platforms and can also be scaled to thicker SOIs. Our results offer a promising solution for future densely-integrated photonic integrated circuits.