Buried Waveguides using a Quasi-Planar Process
Stéphane Calvez, Alexandre Arnoult, Pierre-François Calmon, Aurélie Lecestre, Chantal Fontaine, Antoine Monmayrant, Olivier Gauthier-Lafaye, Guilhem Almuneau

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Buried Waveguides using a Quasi-Planar Process
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**Context:**
The selective oxidation of Al-containing III-V semiconductors with high Al content is an established process to confine light and electrical injection in vertical-cavity surface emitting lasers [1-2] which is also used to create edge-emitting lasers [2], whispering-gallery-mode resonators [3-4], photonic crystal waveguides [5-6] and non linear frequency converters [7].

**Problem:**
The oxidation is a lateral oxidation process performed from the edges of an etched mesa
The associated drawbacks are:
• Loss of wafer surface planarity
• Complex subsequent steps of fabrication process

**Contribution:**
Here, we demonstrate a modified process where the oxidation is performed via a discrete set of holes instead of a linear mesa for the fabrication of straight waveguides.

[6]: Welna et al., Photonics and Nanostructures, 11, 139 (2013).

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