

## Ph.D Project EIPHI GS THEIA

Job title	PhD Thesis in FEMTO-ST
Job type (PhD, Post-doc, Engineer)	PhD
Contract duration (months)	36 months
Qualifications (Master, Ph.D ...)	Master
Job hours (full time/ part time)	Full Time
Employer	UBFC Université Bourgogne Franche-Comté
Financing Institutions	Région Bourgogne Franche-Comté & Graduate School EIPHI
Host Laboratory	FEMTO-ST
URL Host Laboratory	<a href="https://www.femto-st.fr/fr">https://www.femto-st.fr/fr</a>
Address Host Laboratory	15V Av.Montboucons, 25000 Besançon, FRANCE
Job description	<p>The thesis aims to develop 3D hybrid photonic platforms with a hot-topic application in free space telecommunications. By proposing new generic integration technologies based on the resources of the MIMENTO technology center, the thesis paves the way towards ultra-dense 3D photonic integration while addressing crucial challenges in optical telecommunications (free space, terrestrial or inter-satellite communication).</p> <p>More specifically, the objective will be to develop photonic guides with dimensions of 10 nm to 10 <math>\mu</math>m in lithium niobate, a key material for high-speed aerospace telecommunications. This approach lifts the barriers of ultra-dense photonic integration with the advent of active circuits integrating more than 100 channels per <math>\mu</math>m<sup>2</sup>. Three industrial partners are committed to the project.</p> <p>Tasks:</p> <ul style="list-style-type: none"> <li>- Technological processes for the development of LiNbO<sub>3</sub> nanoguides</li> <li>- Development and testing of multimode LiNbO<sub>3</sub> straight channels</li> <li>- 30-channel-based combiner demonstrator</li> <li>- multimode demonstrator and on-site characterisation</li> </ul>
Supervisor(s)	Nadège Courjal, Optics Dept, FEMTO-ST
Candidate profile	We are looking for applicants with a strong academic background who have completed a five-year master degree (3+2) within Physics, preferably acquired recently; or possess corresponding qualifications that could provide a basis for successfully completing a doctorate.
Keywords	Lithium niobate, integrated photonics, free space telecommunications
Application deadline	June, 01, 2022
Application Depending on the type of position	Please send the following documents (all in one PDF file) by e-mail to <a href="mailto:nadege.courjal@femto-st.fr">nadege.courjal@femto-st.fr</a> : 1) For EU candidates: Copy of your national ID card or of your passport page where your photo is printed. For non-EU candidates: Copy of your passport page where your photo is printed.

	<p>2) Curriculum Vitae (may include hyperlinks to your ResearchID, Research Gate Google Scholar accounts).</p> <p>3) Detailed list of publications (may include hyperlinks to DOI of publications).</p> <p>4) Letter of motivation relatively to the position (Cover Letter) in which applicants describe themselves and their contributions to previous research projects (maximum 2 pages)</p> <p>5) Copy of your Master degree if already available.</p> <p>6) Coordinates of reference persons (maximum 3, at least your master thesis supervisor): Title, Name, organization, e-mail.</p> <p>If you have questions regarding the application, please contact the supervisor.</p>
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