# Ph.D Project EIPHI GS HELIX

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| Job title | Helical lasers and applications |
| Job type (PhD, Post-doc, Engineer) | PhD |
| Contract duration (months) | 36 months |
| Qualifications (Master, Ph.D …) | Master in Physics |
| Employer | UBFC Université Bourgogne Franche-Comté |
| Financing Institutions | Région Bourgogne Franche-Comté & Graduate School EIPHI |
| Host Laboratory | Laboratoire Interdisciplinaire Carnot de Bourgogne |
| URL Host Laboratory | https://icb.u-bourgogne.fr/ |
| Address Host Laboratory | 9 avenue Alain Savary<br>BP 47870 – 21 078 Dijon cedex |
| Job description | The thesis work will focus on the interactions between matter and ultrafast light possessing an orbital angular momentum (OAM). One of the objectives will be for instance to encode the OAM of light in molecules through rotational coherences opening the way to numerous applications for nonlinear optics or quantum memories.<br><br>The PhD thesis will be in charge of the development of the experimental setups including the implementation of spatial pulse shapers for producing OAM fields and of the detection. He/she will carry out the experimental runs of measurements and analysis of results by means of numerical simulations. He/she will have to investigate the fundamental and technical limits of the different designs.<br><br><u>Environment</u>:<br><br>The students will benefit from the facilities of the host laboratory which has two femtosecond laser chains with tunable wavelength, various measuring devices and pulse or beams shapers useful for the project. |
| Supervisor(s) | Edouard Hertz, Pierre Béjot |
| Candidate profile | Master degree in physics or equivalent.<br><br>A strong background in basic physics is needed. Candidates with advanced training in ultrafast optics will be preferred.<br><br>Good communication and writing skills in English (optionally in French). The interest in experimental work, interpreting the data with certain autonomy, will be appreciated. |
| Keywords | Lasers, orbital angular momentum, nonlinear & ultrafast optics |

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| Application deadline | 01/06/2022 |
| Application Depending on the type of position | Please send the following documents (all in one PDF file) by e-mail to:<br><br>1) For EU candidates: Copy of your national ID card or of your passport page where your photo is printed.<br>For non-EU candidates: Copy of your passport page where your photo is printed.<br><br>2) Curriculum Vitae<br><br>3) Letter of motivation (maximum 1 page)<br><br>4) Coordinates of reference persons:<br>Dr. Edouard Hertz, Laboratoire Interdisciplinaire Carnot de Bourgogne, edouard.hertz@u-bourgogne.fr<br>Dr. Pierre Béjot, Laboratoire Interdisciplinaire Carnot de Bourgogne, pierre.bejot@u-bourgogne.fr<br><br>If you have questions regarding the application, you can contact the supervisor. |