

## PhD Thesis – Suptophag project

Job title	Mathematical Physics / Algebraic Geometry
Job type (PhD, Post-doc, Engineer)	PhD
Contract	36 months 1600 € net/month
Qualifications (Master, Ph.D ...)	Master
Job hours (full time/ part time)	Full Time
Employer	UBFC Université Bourgogne Franche-Comté
Financing Institutions	Graduate School EIPHI & Region Bourgogne Franche Comté
Host Laboratory	Institut de Mathématiques de Bourgogne
URL Host Laboratory	<a href="https://math.u-bourgogne.fr/">https://math.u-bourgogne.fr/</a>
Address Host Laboratory	Institut de Mathématiques de Bourgogne (UMR 5584 CNRS) Université de Bourgogne Faculté des Sciences Mirande 9 avenue Alain Savary BP 47870 21078 Dijon
Job description	<p>The fellowship is in the framework of the project SupToPhAG, funded by EUR-EIPHI, BFC-Region. The research will take place under the supervision of Daniele Faenzi and/or Taro Kimura. Please refer to the web page for more information about the institute: <a href="https://math.u-bourgogne.fr/">https://math.u-bourgogne.fr/</a></p> <p>Description</p> <p>Recently, there have been a lot of progress concerning the intersection of algebraic geometry and theoretical physics. The successful candidate is supposed to pursue one of the research topics including:</p> <ul style="list-style-type: none"> <li>• Algebro-geometric perspective on topological phases of matter, topological field theory, higher-order topological insulators;</li> <li>• Geometric perspective of quantum field theory in the relation to hyper-Kähler geometry, instantons, quiver varieties;</li> <li>• Derived categories and moduli spaces in algebraic geometry;</li> <li>• Applications of algebraic geometry to theoretical physics, in particular, gauge theory, string theory, matrix model, and integrable system.</li> </ul>
Supervisor(s)	Daniele Faenzi ( <a href="mailto:daniele.faezi@u-bourgogne.fr">daniele.faezi@u-bourgogne.fr</a> ) Taro Kimura ( <a href="mailto:taro.kimura@u-bourgogne.fr">taro.kimura@u-bourgogne.fr</a> )
Candidate profile	Candidates must hold a master (or equivalent) degree in mathematics or theoretical physics. It is expected that

	<p>candidates possess a strong background in one or more of the following topics: algebraic geometry, schemes and sheaves, quantum field theory (preferably its geometric aspects).</p>
Keywords	
Application deadline	30/04/2021
Application Depending on the type of position	<p>The applicants should send us:</p> <ol style="list-style-type: none"> <li>1. a cover letter with a statement of motivation</li> <li>2. a CV</li> <li>3. a summary of master's thesis</li> <li>4. a transcript of academic record</li> <li>5. a contact list of at least two reference persons</li> </ol> <p>We are willing to answer any inquiry from interested candidates. Please write to both addresses below. Daniele Faenzi (daniele.faenzi@u-bourgogne.fr) Taro Kimura (taro.kimura@u-bourgogne.fr)</p>