Grégoire Naisse

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Education

- 2015 – Now: **PhD Thesis** in Mathematics entitled « Categorification of Verma modules ».
- 2013 – 2015: **Master** in Mathematical Sciences at the Université catholique de Louvain.
- 2010 – 2013: **Bachelor** in Mathematical Sciences at the Université catholique de Louvain.
- 2004 – 2010: High-school with options Dutch-Latin-mathematics.

Experiences

- 2015 – 2018: I gave **exercise lessons on differential geometry** at the UCLouvain.
- 2014 – Now: volunteer staff/organizer for the **non-profit organization « Archeolo-J »** which aim to raise awareness on history and archeology among young people (www.archeolo-j.be).
- 2013: design of mathematical exercises for the UCLouvain for an audience of high school students.
- 2012: development of a **simulation software** to test satellites in collaboration with Corentin Naisse for Thales Alenia Space as a designer of the overall **software architecture** and **user interface** programmer. The simulator was made with **Matlab** software.
- 2007 – 2012: development of a **free indie game** « Holyspirit » in collaboration with more than a dozen people as project manager, programmer and graphic designer (www.indiedb.com/games/holyspirit).
- 2003 – Now: development of **game prototypes** in 2D and 3D as hobby, with Macromedia Flash, **C and C++** (SDL, SFML, OpenGL, **Vulkan** …).

Languages and general knowledge

- **French**: mother tongue.
- **English**: professional skills.
- **Programming skills**: C++, C, Java, PHP, xHTML, LaTeX, …
- **Softwares**: Matlab, 2D graphics (Gimp, Photoshop), 3D graphics (3DS Max).
- Driver's license.

Interests and hobbies

- **Pure mathematics** (algebraic topology, knot theory, representation theory, categorification, …) and **applied mathematics** in software development.
- **Video-games**: technologies and the development environment in general.
- **Archeology**: amateur archeologist in Belgium since 2004.
- Role playing games, boardgames ...

Publications and preprints

- G. Naisse and P. Vaz, "An approach to categorification of Verma modules", Proc. Lond. Math. Soc. (2018), arXiv:1603.01555
- G. Naisse and P. Vaz, "On 2-Verma modules for quantum sl(2)", Selecta Math. (N.S.) 24 (2018), no. 4, 3763-3821 arXiv:1704.08205
- G. Naisse and P. Vaz, "Odd Khovanov's arc algebra", Fund. Math. 241 (2018), no. 2, 143–178, arXiv:1604.05246
- G. Naisse, "Asymptotic Grothendieck groups and c.b.l.f. positive dg-algebras, 2019, arXiv:1906.07215
- G. Naisse and P. Vaz, "2-Verma modules and Khovanov-Rozansky link homologies", 2018, arXiv:1704.08485
- G. Naisse and P. Vaz, "2-Verma modules", 2018, arXiv:1710.06293

Talks and posters

- **3h mini-course** on "Higher representation theory of sl2" in Brussel (2019).
- Poster and minitalk "Odd arc algebras and odd topological Springer fibers" during the workshop "Categorification and higher representation theory" at the institute Mittag-Leffler, Stockholm (2018).
- **Distinguished student talk** "2-Verma modules and the Khovanov-Rozansky link homologies, II" during the conference "Knots In Washington XLVI" in Washington DC (2018).
- Talk "Categorification of Verma modules: general case" at the USC for the "Categorification seminar", Los Angeles (2018).
- Poster and minitalk "2-Verma modules", during the winter school "Categorification, representation theory and symplectic geometry" at the HIM in Bonn, Germany (2017).
- Talk "Categorification of Verma modules", seminar on Quantum groups, Hopf algebras and monoidal categories, ULBruxelles/UCLouvain (2017).
- Talk "Odd Khovanov's arc algebras", student seminar at the Université de Bourgogne, Dijon, France (2016).
- Poster "Odd Khovanov's arc algebras", during "Winterbraid", Lille, France (2016).