Séverin Philip

Postdoctoral fellow

Department of Mathematics
Stockholm University
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Born 02/04/1991 Nationality : French

Research interests

- Abelian varieties with bad reduction
- Arithmetic moduli spaces
- Homotopic Galois theory, anabelian geometry

Education

2018–2021 **PhD in Number Theory**, *Université Grenoble Alpes*, France
PhD advisor Prof. G. Rémond, title "Semi-stable reduction of abelian varieties" (defense Oct. 2021).

2015–2018 **Masters of Mathematics (MSc.)**, *Université Grenoble Alpes*, France
Major: Number Theory, with honors, ranked 1st.

2017 **"Agrégation de mathématiques"**, *French national exam (ranked 43rd).*

2015 **License of Mathematics (BSc.)**, *Université Grenoble Alpes*, France
With honors, ranked 1st.

Positions

Since October 2024 **Postdoctoral researcher (incl. teaching resp. 20%)**, *Stockholm University*, Sweden

2022-2024 **Postdoctoral researcher (JSPS)**, *RIMS, Kyoto University*, Japan

2021–2022 **Postdoctoral researcher (ATER position) (incl. teaching resp. 96hrs/yr)**, *Université Grenoble Alpes*, France

2018–2021 **PhD student (incl. teaching resp. 64hrs/yr)**, *Université Grenoble Alpes*, France

Memberships and Academic services

Apr. 2027 **Arithmetic invariants from homotopy Galois theory**, *Lead organizer*, focus workshop part of https://ahgt.math.cnrs.fr/AHG-year_27-28/Season-A/

Since Sept. 2023 **Reviewer for MathSciNet**, *(10 reviews)*

Since Mar. 2023 **"Atelier de Géométrie Arithmétique" (Franco-Japanese)**, *Lead organizer (3 sessions)*, https://ahgt.math.cnrs.fr/activities/#young-researchers-workshops

Since 2022 **"Arithmetic and Homotopic Galois Theory" RIMS-LPP-ENS International Research Network**, *core member*, https://ahgt.math.cnrs.fr/

Publications

- S. Philip, Finite monodromy groups in degenerating families and the stability degree of curves, preliminary version available online 25p., 2026.
- B. Collas, N. Yamaguchi et S. Philip, Anabelian geometry of Deligne-Mumford curves, *arxiv:2605.02577* 36p., 2026.
- B. Collas et S. Philip, Special loci and Johnson homomorphisms, *(submitted)*, 15 p., 2026.
- S. Philip, The local obstruction to semi-stable reduction for abelian varieties, *(to appear in Mathematics Research Reports) arXiv:2511.05127*, 14 p., 2025.

- S. Philip, The (p, t, a)-inertial groups as finite monodromy groups, *(submitted) arXiv:2503.21199*, 29 p., 2025.
- S. Philip, Groupes de monodromie finie des variétés abéliennes, *(submitted) arXiv:2412.11900*, 33 p., 2024
- S. Philip, Oda's problem for G-special loci, *The 20th Mathematics Conference for Young Researchers : MCYR20*, in *Hokkaido University technical report series in Mathematics*, 186, p. 121–123, 2024.
- S. Philip. Oda's problem for cyclic special loci, *MFO-RIMS tandem workshop: Arithmetic homotopy and Galois theory*, dans *Oberwolfach Rep. 20, No. 3, 2377-2488 (2023)*, p. 2446–2449, 2023.
- On Oda's problem and special loci. (41p.), *published online*, with B. Collas, In Journal de l'Institut de Mathématiques de Jussieu, 2024.
- Field of definition of abelian subvarieties, *Journal de Théorie des Nombres de Bordeaux*. 34. 2022. 537–547.
- Variétés abéliennes CM et grosse monodromie finie sauvage, *Journal of Number Theory.* 240. 2022. 163–195.
- On the semi-stability degree for abelian varieties, *Bulletin of the London Mathematical Society.* 54. 2022. 2174–2187.

Invited Talks to conferences, workshops and seminars

Arithmetic of fundamental groups

2026 fev. **Stockholm algebraic geometry seminar**, *Stockholm*, Sweden
The l-monodromy fixed fields of curves.

2025 June **Number theory seminar**, *Strasbourg*, France
Le problème de Oda pour les lieux spéciaux

2024 Apr. **Niigata Algebra Seminar**, *Niigata*, Japan
The maximal degeneration method for special loci

2024 Apr. **FJ-LMI Seminar**, *Tokyo*, Japan
Galois outer representations, Oda's problem and special loci

2024 Mar. **Anabelian geometry in Tokyo 2024**, *Tokyo*, Japan
Oda's problem for cyclic special loci

2024 Mar. **The 20th Mathematics Conference for Young Researchers**, *Hokkaido (participation online)*, Japan
The classical problem of Oda and an analogue for cyclic special loci

2024 Mar. **Low Dimensional Topology and Number Theory XV**, *Fukuoka*, Japan
The maximal degeneration method for special loci

2024 Jan. **Aichi Number Theory Seminar**, *Nagoya*, Japan
On Oda's problem and special loci

2023 Sept. **MFO-RIMS Tandem workshop 2023 - Arithmetic Homotopy and Galois Theory**, *Research Institute for Mathematical Sciences*, Japan
Oda's problem for cyclic special loci

Diophantine geometry of abelian varieties

2026 May. **Clermont-Ferrand Number Theory seminar**, *Clermont-Ferrand*, France
Degrés de stabilités et lemmes de Krasner

2026 Feb. **RIMS AG/NT seminar**, *Kyoto*, Japan
A group-theoretic characterization of finite monodromy groups

2025 Nov. **Number theory seminar**, *Lille*, France, L'obstruction locale à la réduction semi-stable

2025 Nov. **Stockholm algebraic geometry seminar**, *Stockholm*, Sweden, The obstruction to semi-stable reduction for abelian varieties

2025 Oct. **Trondheim algebra seminar**, *Trondheim*, Norway, The fields of semi-stability

2024 Nov. **Number theory seminar**, *Besançon*, France
Une caractérisation des groupes de monodromie finie des variétés abéliennes

2024 Sep. **Rencontre de théorie des nombres EThéN**, *CIRM*, France
Le degré de semi-stabilité pour les variétés abéliennes

2024 Jul. **Sendai-Hiroshima Number Theory Conference**, *Hiroshima*, Japan
The semi-stability degree for abelian varieties

2024 Jun. **RIMS AG/NT seminar**, *Kyoto*, Japan
Finite monodromy groups of abelian varieties

2024 Jun. **Hokkaido algebra seminar**, *Sapporo*, Japan
Semi-stable reduction and finite monodromy groups of abelian varieties

2023 Dec. **Copenhagen Number Theory seminar**, *Copenhagen*, Denmark, (online)
A new construction for finite monodromy groups.

2023 Apr. **Séminaire Variétés Rationnelles**, *École polytechnique*, France
Degré de semi-stabilité des variétés abéliennes et monodromie finie

2023 Apr. **Number Theory seminar**, *Université de Bordeaux*, France
Groupes de monodromie finie et variétés abéliennes CM

2023 Jan. **"Arithmétique" seminar**, *Université de Lille*, France
Groupes de monodromie finie et variétés abéliennes CM

2022 Nov. **RIMS NT/AG seminar** , *Kyoto University*, Japan
Semi-stability degree for abelian varieties and finite monodromy groups in the CM case

2022 Nov. **4th Kyoto-Nanjing workshop on Geometry and Arithmetic**, *Online*
Fields of definition of endomorphisms and abelian subvarieties.

2022 Apr. **Algebra seminar**, *Western University*, Canada, (online)
On the degree of semi-stable reduction for abelian varieties.

2021 Nov. **Number theory seminar**, *Clermont-Ferrand*, France
Degré de semi-stabilité pour les variétés abéliennes.

2021 Sept. **Number theory seminar**, *Grenoble*, France
Groupes de monodromie finie et degré de semi-stabilité pour les variétés abéliennes.

2020 Dec. **Copenhagen Number Theory seminar**, *Copenhagen*, Denmark, (online)
The degree of semi-stable reduction.

2020 Dec. **RéGA seminar**, *Paris*, France, (online)
Critères de réduction pour les variétés abéliennes.

2020 Aug. **Homotopical arithmetic geometry seminar**, *RIMS-Kyoto*, Japan, (online)
Good reduction of abelian varieties and Ogg-Néron-Shafarevich criterion.

2020 May **Linfoot seminar**, *University of Bristol*, UK, (online)
Semi-stable reduction of abelian varieties.

2020 Feb. **"Around the torsion conjecture for abelian varieties" seminar**, *Université Grenoble Alpes*, France
On ℓ-adic representations 1 & 2.

2019 Oct. **Fourier "Phd days"**, *Université Grenoble Alpes*, France
Semi-stable reduction of abelian varieties.

2018 Nov. **"Bernouillis Tafelrunde" seminar**, *University of Basel*, Switzerland
Field of definition of abelian subvarieties.

Invited conferences and workshops

2025 mars **Low dimensional topology and number theory XVI**, *Osaka*, Japon

2024 Sep. **Rencontre de théorie des nombres EThéN**, *CIRM*, France

2024 mars **Low dimensional topology and number theory XV**, *Fukuoka*, Japon

2023 Sep. **Arithmetic Homotopy and Galois Theory**, *MFO-RIMS Tandem workshop*, Research Institute for Mathematical Sciences, Japan
Video Conference Assistant

2023 Jun. **Explicit computation with stacks**, *Mathematical Research Community (AMS)*, Beaver Hollow Conference Center, United States of America

2023 Mar. **Arithmetic and Homotopic Galois Theory**, *Hybrid Paris-Kyoto conference*, Research Institute for Mathematical Sciences, Japan

2021 Mar. **Homotopic and Geometric Galois Theory**, *MFO workshop*, Oberwolfach, (online)
Oberwolfach Leibniz graduate student fellow, reporter

2019 Jul. **Galois theory and Number theory**, *2nd French-German summer school*, Technical University of Dresden, Germany

2019 Apr. **Reinventing rational points**, *IHP program (Spring school)*, CIRM Luminy, France

Teaching experience

Creation of exercises sheets, evaluations; grading of final exams; high availability for one-on-one discussions.

2018 **Bilinear algebra and Fourier Theory**, *Students in science and design program*, 2nd year, 4hrs/week

2018 **Oral evaluations**, *Students in mathematics program*, 1st year, 12hrs over 2 weeks

2019 **Mathematics for other sciences**, *Students in engineering sciences program and students in earth sciences program*, 1st year, 6hrs/week

2020 **Mathematics for other sciences**, *Students in engineering sciences program and students in earth sciences program*, 1st year, 6hrs/week

2021 **Mathematics for other sciences**, *Students in chemistry and biology program*, 1st year, 6hrs/week

2021 **Introduction to mathematical biology and to the dynamic of populations**, *Students in chemistry and biology program*, 1st year, 2hrs/week

2024 **Mathematics III**, *Graph theory and combinatorics*, teaching assistant

2025 **Mathematics I**, *"Handledning"*

Since 2021 **Supervision of master's internships and bachelor thesis**

Grants and funding

2025 **Laureate of a scholarship of the Royal Swedish Academy of Sciences**, *35K KR*

2022–2024 **Laureate of a JSPS Kakenhi grant**, *2.4M Yen*

Languages

French, *Mother tongue*

English, *Fluent, 965 TOEIC*
Japanese, *Beginner*
German, *B1 (Highschool diploma)*
Swedish, *A2 (reading)*