



Trinity College Dublin

Coláiste na Tríonóide, Baile Átha Cliath

The University of Dublin

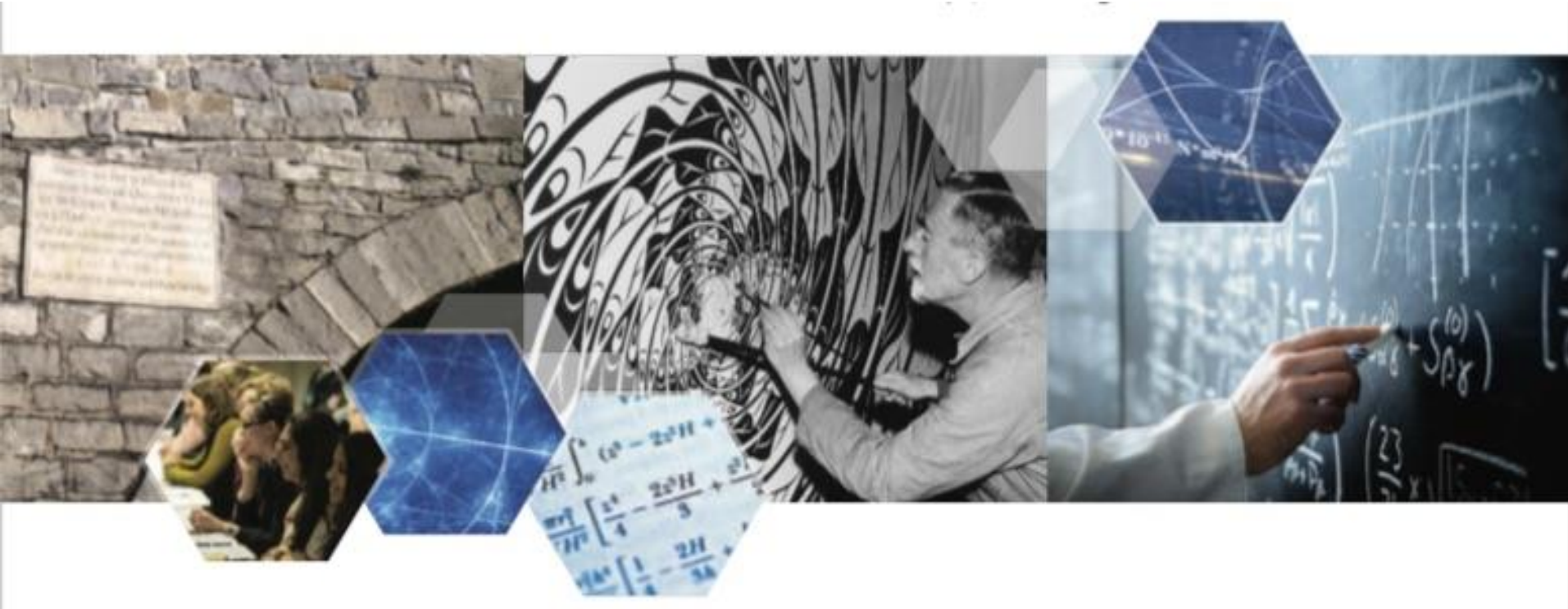
Theoretical Physics (TR035)

Orientation 2026

Prof. Sergey Frolov (Course Director)

14 September 2026

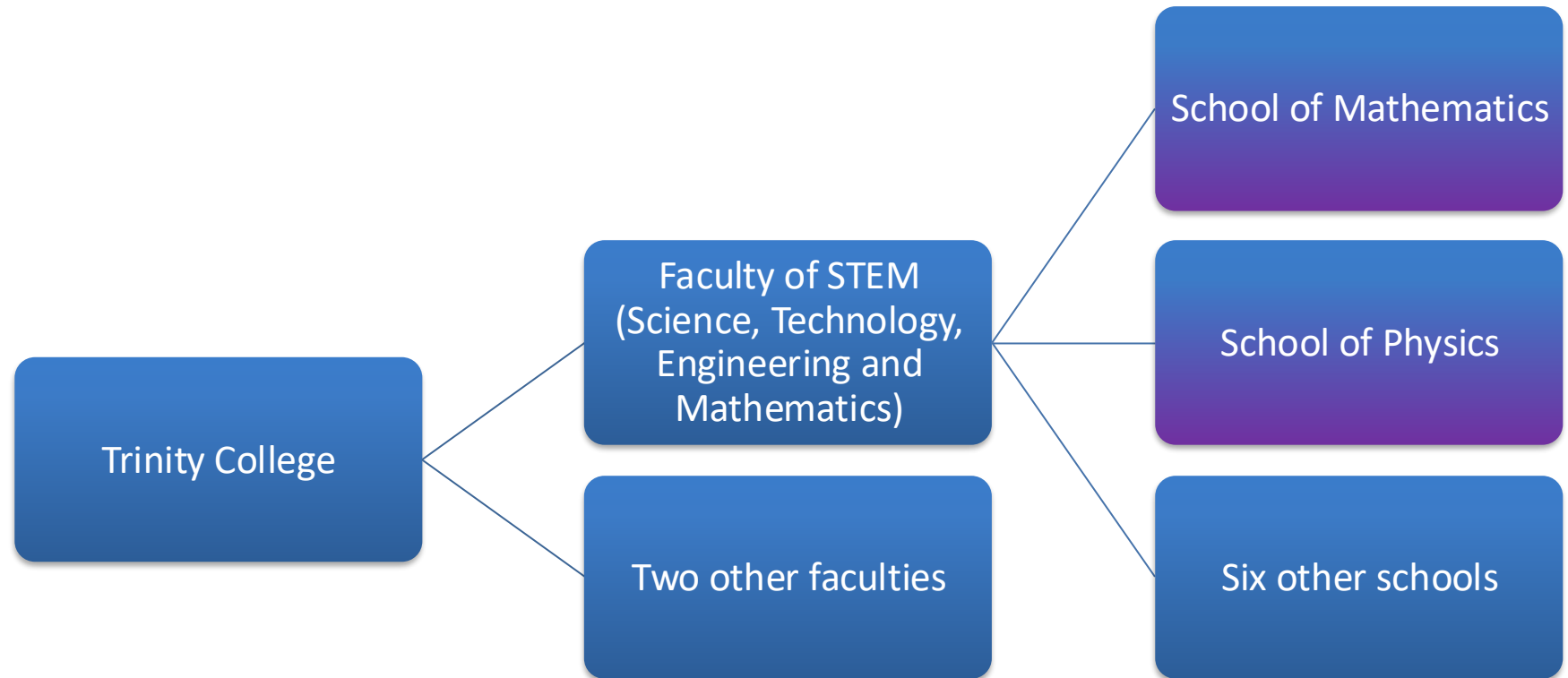
Congratulations and welcome to Theoretical Physics at TCD!



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Theoretical Physics at TCD

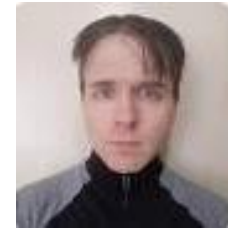
TP modules are taught by the School of Mathematics and the School of Physics:



Junior Fresh TP course

✓ Course consists of 60 credits. In the first term (Michaelmas) you will take:

- MAU11100 Linear Algebra,
Prof. Logan [5 credits in MT]
- MAU11201 Single-variable calculus,
Prof. Karageorgis [10 credits]
- MAU11400 Mechanics,
Prof. Glennon [5 credits in MT]
- PYU11T10 Physics for Theoretical Physicists,
Several lecturers [10 credits], info coming in Physics Orientation



✓ All JF modules are compulsory; there is more freedom in later years.



Online information

- **Selected modules, timetable, exam schedule, exam results:**

- <http://my.tcd.ie> (main source)
- Blackboard: <http://mymodule.tcd.ie> (module details, some lecturers)
- Lecturers' web pages (some lecturers)
- Your tcd.ie e-mail (be sure to check it regularly!)

- **To plan in the future:**

- **Know what awaits you in future years** (check module prerequisites)
- <http://www.maths.tcd.ie> (-> undergraduate -> theoretical physics)
- <https://www.tcd.ie/Physics/study/current/undergraduate/>



PROFESSIONALLY ACCREDITED DEGREE ROUTE IN THEORETICAL PHYSICS

OM: Open Module, TE: Trinity Elective

JF - JS: Core SoM SS Optional Core	JF - JS: OM SoM SS: Optional non-core	JF - JS: Core SoP SS: Optional Core	JF - JS: OM SoP SS: Optional non-core	TE/OM Other Schools	SS Capstone
10 credits					
5 credits					

Module prerequisites are suppressed for concision

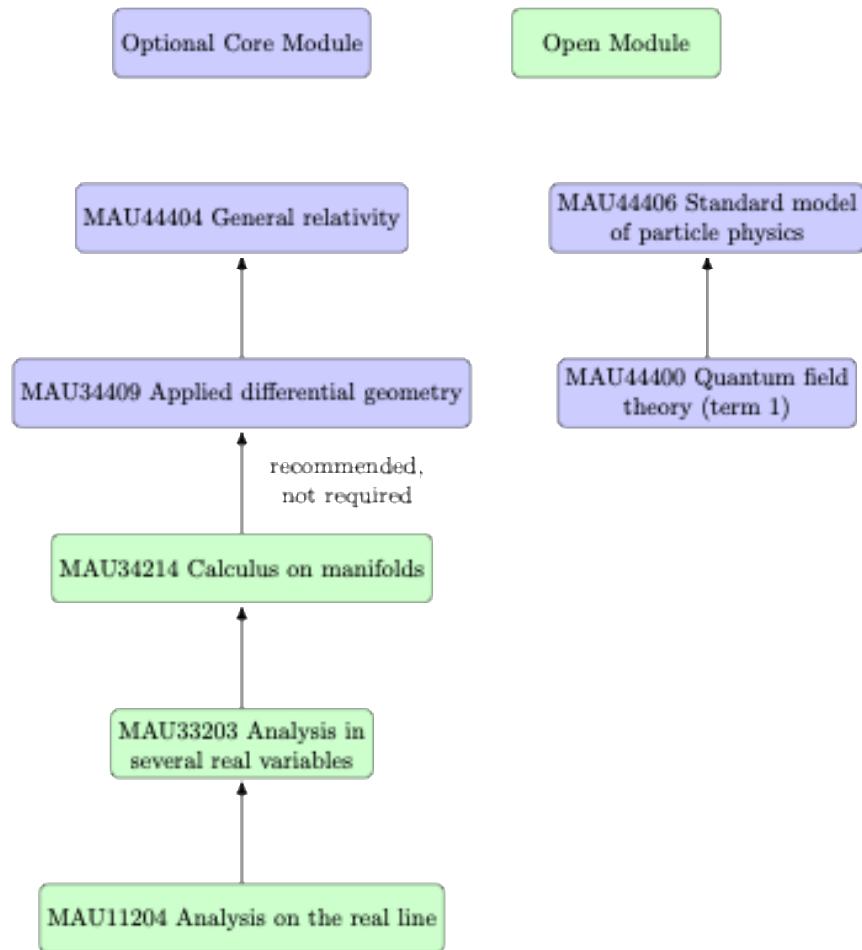
Teaching Council requirements for Mathematics or Appl. Maths are labelled by %

School of Mathematics					Jointly Taught	School of Physics			Note: contents of School of Physics modules in Fresher years:
JF Michaelmas	Calculus		Linear Algebra	Classical Mechanics I		Physics 1 for Theoretical Physics			Physics 1 for TP: Intro (3), Special Rel. (15), Waves & Optics I (20), Statistics (10)
	Techniques for Theoretical Physics	Advanced Calculus	Linear Algebra	Classical Mechanics II		Physics 2 for Phys. Sci. & TP			Physics 2: Electricity & Magnetism I, Quantum Physics, Gravitation & Astrophysics
JF Hilary	JF: 60 TP core with 40 SoM + 20 SoP								Physics 3: Thermodynamics, Electricity & Magnetism II, Materials, Oscillations
SF Michaelmas	Introduction to Programming	Group Theory	Equations of Math. Physics I	Adv. Classical Mechanics I		Physics 3 for Phys. Sci. & TP			Physics 4 for TP: Chaos, Nuclear & Particle, Observing the Universe, Waves & O. II
SF Hilary	Euclidean & Non-E. Geometry %	Analysis on the Real Line	Complex Analysis	Adv. Classical Mechanics II		Physics 4 for Theoretical Physics			
SF: 40 TP core with 20 SoM core + 20 SoP + 10 OM + 10 TE									Other Schools
JS Michaelmas	Analysis in Several Real Variables	Statistical Physics I	Classical Field Theory	Quantum Mechanics I		Condensed Matter Physics I	Practical 1 for TP	Computer Simulation I	Trinity Elective
JS Hilary	Introduction to Numerical Analysis	Calculus on Manifolds %	Statistical Physics II	Electrodynamics	Quantum Mechanics II	Atomic Physics & Statistical Thermodynamics	Practical 2 for TP	Stellar & Galactic Structure	Trinity Elective
JS: 50 TP core with 30 SoM core + 20 SoP + 10 OM						Condensed Matter Physics II (Semiconductors)			
SS Michaelmas	Combinatorics	Introduction to Partial Differential Equations	Lie Groups, Lie Algebras, and Physics	Practical Numerical Simulations	Quantum Field Theory I ^	Applied Differential Geometry ^	Practical: Experimental & Computational Laboratories, Outreach, Careers, Safety, Communication Skills		
SS Hilary	Advanced Partial Differential Equations	Interacting Quantum Systems	Standard Model of Particle Physics ^A	Quantum Field Theory II	General Relativity	Nuclear & High Energy Physics ^A	Quantum Plasmonics and Metamaterials ~	Cosmology ~	
SS: 40 TP core & non-core + 20 Capstone core						Equally balanced across semesters.			Note: module choice requirements for SS:
SS non-core modules in SoM vary by year.						Either a SoM or SoP module is chosen.			1) Module prerequisites will be indicated on the module choice form.
						Quantum Optics & Information			2) Problem Solving is mandatory.
						Energy Science			3) Outside of the Capstone project, in SS year each student must take at least 5 credits from each School in each semester.
						Computer Simulation II			4) At least one of the modules labelled ^ must be chosen. QFT is a full-year module.
									5) At least one of the modules labelled ^A must be chosen, but not both. QFTI is a prerequisite for Standard Model.
									6) The modules labelled ~ cannot both be selected.



Prerequisite diagram for optional modules in TR035 (Theoretical Physics)

This diagram depicts some popular sequences. For complete prerequisite information, see the detailed module descriptions at <https://www.maths.tcd.ie/undergraduate/modules/allmods.php>.



Attendance

- ✓ Attendance is often not monitored, but is in principle required, and is obviously highly recommended. (College rule is at least two thirds for satisfactory academic progress.)
- ✓ Different lecturers will have different policies regarding continuous assessment. In general, if you miss handing in work due to sickness you should contact the lecturer, and a med cert may be required.
- ✓ In Physics, attendance is mandatory for labs.



Assessment

Most modules are evaluated through continuous assessment and exams. Exams take place in December and May.

Results for examinations are published according to the following grades:

I = 70+, II.1 = 60-69, II.2 = 50-59, III = 40-49, F.1 = 30-39, F.2 = 0-29.

Final degree award: 70% SS + 30% JS

Exams

Knowing regulations regarding the exams is your responsibility!

- ✓ If you have a disability, you can get extra time. Contact the disability service. Also for temporary disability.
- ✓ Missed, or late exam -> Tutor ASAP. Read before exams what to do in case of...
- ✓ “Not fit? Don’t sit!”
- ✓ Not everything is an excuse for missing the exam. Documentation is required.



Exams and Progression

In order to pass at the annual examination session you must either:

1. pass in each module, or
2. pass by compensation, which is:

Obtain a credit weighted average of at least 40% AND pass modules totaling at least 50 credits AND have at least 35% in the remaining module(s).

Students who do not pass or pass by compensation at the annual examinations must supplement in all failed modules. There is one reassessment session in August/September, also for deferrals for medical or personal reasons.

Details of reassessment are given on the module pages on maths.tcd.ie.

Supplemental results are assessed based on the modules passed at the annual examination session, together with the results at the supplemental session.



If you fail supplemental examinations, you may be permitted to repeat the year. Permission to repeat the year will normally be granted if you have attempted all your assessments, or if you can provide acceptable reasons for absence from examinations.

You can be excluded if you are deemed to have unsatisfactory academic progress (no attendance, missing labs or exams without good reason).

You may not repeat any academic year more than once, and may not repeat more than two academic years, except by special permission of the University Council.

Students repeating the year are liable for full fees. There is a Free Fees Initiative in place for special circumstances.

There is also an option to apply to go off-books with assessments (OBA) for up to 20 ECTS. OBA counts as a repeat year.

It is possible to leave with an Ordinary Bachelor's degree after completing JS year.



Regulations

- ✓ Communication with fellow students is encouraged, but not plagiarism!

See <https://www.tcd.ie/teaching-learning/ug-regulations/Plagiarism.php> for details regarding policy.

All students are required to take the “Ready Steady Write plagiarism tutorial” online before submitting any assessed work (homework, tutorial assignments, essays, projects etc.), and are required to fill in a cover sheet.

- ✓ General regulations for the course can be found on the school of mathematics JF TP web page.

<https://www.maths.tcd.ie/undergraduate/modules/jftp.php>

- ✓ Official regulations for the TP course, and courses in general, are in the College Calendar.



For Physics students, including TP

Certain exceptions ('derogations') to standard College regulations apply.

- ✓ In JF and SF Physics (PYU) modules, there are minimum marks required in each *component* of the module (homework, lab, exam).
- ✓ In JF and SF Physics (PYU) modules, reassessments are capped at 60%, at the level of components.
- ✓ In JS and SS years, reassessments are capped at 60%, at the level of components, in *all* your modules across all schools.

More information to follow in the Physics orientation session. Full text at <https://www.tcd.ie/teaching-learning/academic-affairs/ug-prog-award-regs/derogations/by-school.php>

Select the year and scroll to the School of Physics.



Practical Information

Points of contact with college

- **Contact your College Tutor this week. They will be involved:**
 - ✓ when your college work is affected by medical or personal circumstances
 - ✓ when you miss an exam, arrive late, or appeal the result
 - ✓ with course transfer
 - ✓ if you take a break from studies (go off books)
 - ✓ and can help with referrals to other services
- **Other services to help:**
 - Counselling service https://www.tcd.ie/Student_Counselling/
 - S2S society and mentors: <http://student2student.tcd.ie>



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Practical Information

Points of contact:

- **For modules: lecturers of the modules**
- **School Office:** Office 0.6 School of Mathematics

Ms. Jennifer Murray mathdep@maths.tcd.ie

- **Course coordinators:**

- Prof. Sergey Frolov (School of Maths)
- Prof. David O'Regan (School of Physics)



- **Your Class Representative**



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Contacting staff by e-mail

- Use your **tcd.ie** email
- Include your **student number**
- Format of a **letter**
- Establish **context**
 - ✓ Are you writing as a TP student, a Tutee, a student in a specific module, class rep?
 - ✓ Context in subject line also
 - ✓ No need to introduce yourself by name





It is possible to transfer between courses, based on availability of places and entry qualifications.

Contact your Tutor. Deadline for JF internal transfer is the beginning of October.

After your first year your examination results are taken into account.

TP to Maths: easiest into 2nd year. TP to Physics: easiest into 3rd/4th years.



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Maths Help Room

- ✓ The school runs a Maths Help Room, which is a drop-in center where you can bring in a maths question and get some help from other students.
- ✓ Watch for an announcement by e-mail. Most likely 1-2 pm weekdays.



Dignity & Respect

<https://www.tcd.ie/equality/policy/dignity-and-respect-policy/>

Trinity is committed to supporting a collegiate environment in which staff, students and other community members are treated with dignity and respect.

Bullying and harassment (including sexual and racial harassment) are not tolerated in Trinity.

Your Tutor is the first point of contact.



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Class Life

Get to know your fresh classmates:

- You are likely to spend the next four years together
- You are encouraged to discuss course material, careers, etc.

Get to know the students ahead of you:

- Mathsoc/Physoc/Astrosoc obvious places to meet other TP students
- Can be useful guides to help you navigate through the years, and prepare for internships/jobs
- Society memberships more broadly can enrich student life



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School of Physics

**Orientation Thursday 17 September, 3 pm,
Physics Large Lecture Theatre**

Together with Physical Sciences and Chemical Sciences.

Should already be on your timetable under module code PYU11T10.



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2026? Trinity College Dublin and Three Ireland Connect to STEM Undergraduate Scholarships

Trinity College Dublin and Three Ireland are committed to attracting the best talent from Ireland and around the world to empower excellence and innovation in Science, Technology, Engineering and Mathematics (STEM). Through our partnership, we are taking steps to further promote diversity and inclusion in Trinity's STEM undergraduate student population, with a particular focus on women in STEM. Our aim is that students graduating from STEM will enter a richer more diverse environment across science and will pursue a variety of career opportunities in technology and industry. Three Ireland is supporting 25 undergraduate scholarships over the 5 year and the scholarship programme commenced in 2022/2023. Five awards will be made annually. Each scholarship is valued at €20,000 (to be dispensed over the first 4-years of the undergraduate degree programme).

In 2025/26, the scholarships will target undergraduate women*, in their first year of studies at Trinity who are a resident in Ireland at the time of application, and have accepted an offer of a place on one of the following undergraduate degree programmes in:

School of Computer Science & Statistics

School of Engineering

School of Mathematics

School of Physics

Or in the following course:

Chemical sciences

* Applications from gender-diverse and trans students are eligible.

All the details will be on the Faculty of STEM website at <https://www.tcd.ie/stem/>



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Best wishes for your studies!