

Национален план за
възстановяване и устойчивост



НА РЕПУБЛИКА БЪЛГАРИЯ



SOFIA UNIVERSITY
MARKING MOMENTUM
FOR INNOVATION AND
TECHNOLOGICAL TRANSFER



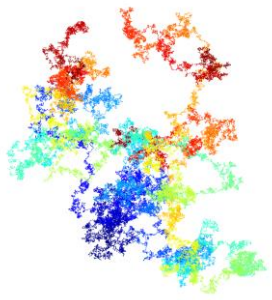
Funded by
the European Union
NextGenerationEU

Work Group ГΑΜΜΑ

Report period 01.04.2023 – 31.03.2024

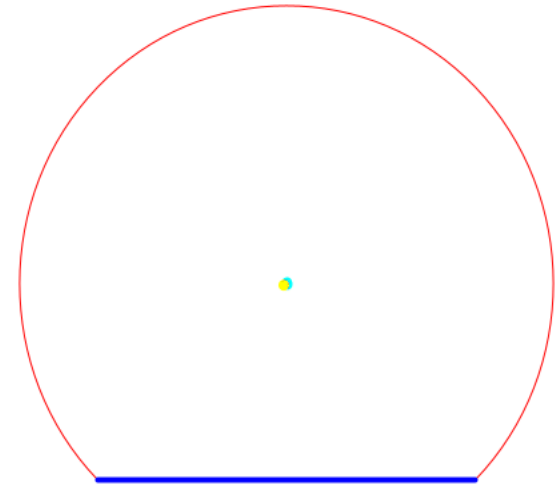
Random processes

(theory and applications)



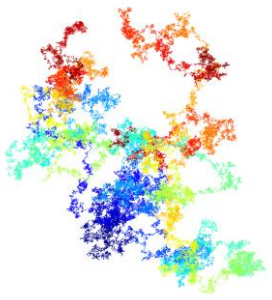
Random processes are commonly used in modelling real-world phenomena such as:

- Brownian motion of pollen grain on standing water; Urn processes (Physics);
- pricing of financial derivatives (Financial mathematics);
- movement of animals (Biology)...



Work programme

ΓAMMA

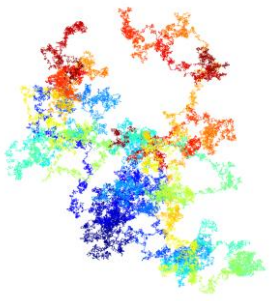


Consists of 5 main work packages:

- anomalous diffusions;
- 2. bivariate Bernstein-gamma functions;
- 3. exponential functionals;
- 4. applications in mathematical finance;
- 5. applications in modelling and statistics.

Work programme

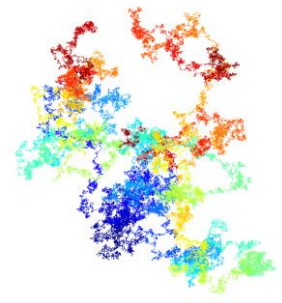
ΓAMMA



Novel research directions:

- urn processes;
- Wiener-Hopf factorizations;
- random trees;
- machine learning...

Research team



ΓAMMA

1 leading
researcher
(R4)

4 established
researchers
(R3)

1 senior
researcher
(R2)

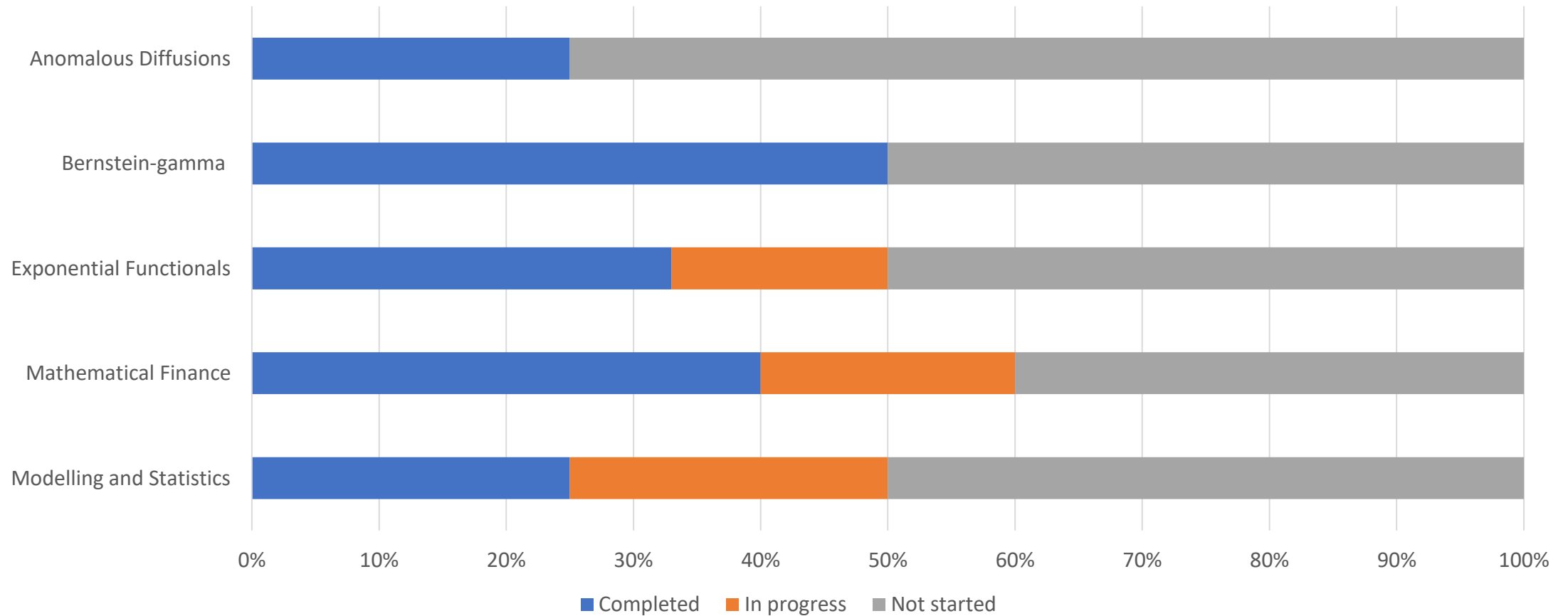
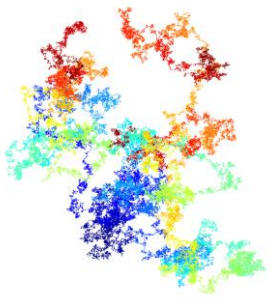
1 postdoctoral
researcher
(R2)

1 doctoral
student (R1)

2 technical
support

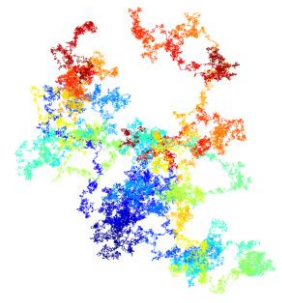
Completion of Work programme

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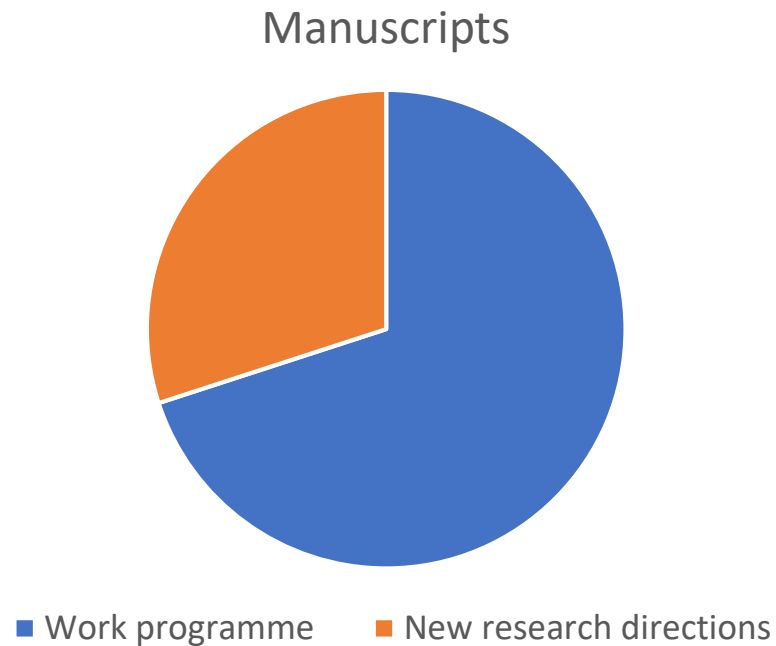


Publications and preprints

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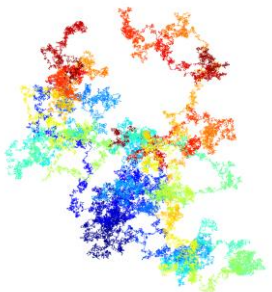
- 7 published and accepted papers
- 7 submitted manuscripts



International collaboration and dissemination

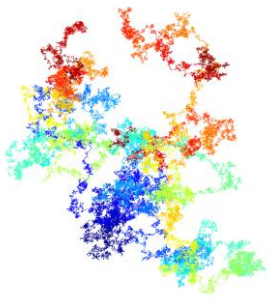
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- 7 international collaborators from different European institutions;
- 4 manuscripts with international collaborators;
- 2 research visits to Bulgaria;
- 6 participations in conferences.



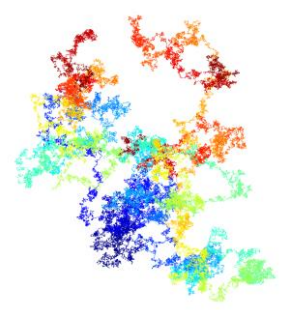
Future activities

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- organization of the “*11th International Conference on Lévy Processes*”
28.07.2025-01.08.2025, Sofia;
- regular visits of international collaborators;
- various dissemination activities...

Risks



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- potential members of the team find better positions;
- local young scientists avoid involvement in research projects;
- possible further changes of rules during the project...



Thank you for your attention!