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Parameterized Approximation

European Research Council
Established by the European Commission

Fact Sheet

Project Information

PARAPPROX

Grant agreement ID: 306992

Project closed

Start date
1 January 2013

End date
31 December 2017

Funded under
Specific programme: "Ideas" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

Total cost
€ 1 690 000,00

EU contribution
€ 1 690 000,00

Coordinated by
UNIVERSITETET I BERGEN
🇳🇴 Norway

Objective

"The main goal of this project is to lay the foundations of a ``non-polynomial time theory of approximation"" -- the Parameterized Approximation for NP-hard optimization problems. A combination that will use the salient features of Approximation Algorithms and
Parameterized Complexity. In the former, one relaxes the requirement of finding an optimum solution. In the latter, one relaxes the requirement of finishing in polynomial time by restricting the

combinatorial explosion in the running time to a parameter that for reasonable inputs is much smaller than the input size. This project will explore the following fundamental question:

Approximation Algorithms + Parameterized Complexity=?

New techniques will be developed that will simultaneously utilize the notions of relaxed time complexity and accuracy and thereby make problems for which both these approaches have failed independently, tractable. It is however conceivable that for some problems even this combined approach may not succeed. But in those situations we will glean valuable insight into the reasons for failure. In parallel to algorithmic studies, an intractability theory will be
developed which will provide the theoretical framework to specify the extent to which this approach might work. Thus, on one hand the project will give rise to algorithms that will have impact beyond the boundaries of computer science and on the other hand it will lead to a complexity theory that will go beyond the established notions of intractability. Both these aspects of my project are groundbreaking -- the new theory will transcend our current ideas of
efficient approximation and thereby raise the state of the art to a new level."

Fields of science (EuroSciVoc) ℹ

natural sciences › **computer and information sciences**

ℹ

Programme(s)

FP7-IDEAS-ERC - Specific programme: "Ideas" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

Topic(s)

ERC-SG-PE6 - ERC Starting Grant - Computer science and informatics

Call for proposal

ERC-2012-StG_20111012
See other projects for this call

Funding Scheme

[ERC-SG - ERC Starting Grant](#)

Host institution

🏢

UNIVERSITETET I BERGEN

EU contribution

€ 1 690 000,00

Total cost

No data

Address

MUSEPLASSEN 1
5020 Bergen
🇳🇴 **Norway** 🗺️

Activity type

Higher or Secondary Education Establishments

Principal investigator

Saket Saurabh (Dr.)

Links

[Contact the organisation ↗](#)   [Website ↗](#)
[Participation in EU R&I programmes ↗](#)
[HORIZON collaboration network 🤝](#)

Beneficiaries (1)

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UNIVERSITETET I BERGEN

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Total cost

No data

Last update: 11 March 2015

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European Union, 2025