Database driven science for new materials

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Silicon facilitates modern technologies
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What to do if we are looking for a new solar cell material?
We go to the Materials Google
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Give me a better solar cell material than silicon!
We go to the Materials Google

Give me a better solar cell material than silicon!

Hybrid perovskite
We don’t have a Materials Google yet!

We wanted to find out why!
Database driven science for new materials (DataSciMat)

Key funding project “Forging ahead with research”

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Patrick Rinke

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Aalto University
School of Science
Database driven materials science

Traditional approach

new materials
Database driven materials science

Traditional approach

- Collect in database
- Share

Database driven approach

- Collect in database
- New materials

Aalto University
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Database driven materials science

Traditional approach

Database driven approach

new materials

collect in database and share

new materials
Database driven materials science

Database driven approach

new materials
Database driven materials science

- Many databases are currently emerging.
- Machine learning is getting more and more popular.

Database driven science:
- What is its potential?
- What is its current state?
- Can it be a new hype?
DataSciMat structure

Industry

Database-driven materials science

Objective 1 - pilot project

Objective 2 - field study

society

Aalto University
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Thank you!