Probability, Networks and Algorithms (PNA)

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Self evaluation CWI 2005-2010

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## Overview:

1. Dynamics in composition

2. Position, cohesion, viability and ambition

Composition of PNA

CWI

1. Algorithms, Combinatorics and Optimization (PNA1)

2. Probability and Stochastic Networks (PNA2)
- merger in 2006

3. Signals and Images (PNA4)
- moved to the SEN cluster in 2010

4. Cryptography (PNA5)
- started in 2004

5. Algorithms and Complexity (PNA6)
- joined PNA in 2010

<u>Flexibility</u>: dynamic group structure in response to new challenges and opportunities

Position of PNA

Probability, Networks and Algorithms (PNA)

Algorithms, Combinatorics and Optimization **PNA1**	Probability and Stochastic Networks **PNA2**	Cryptology **PNA5**	Algorithms and Complexity **PNA6**
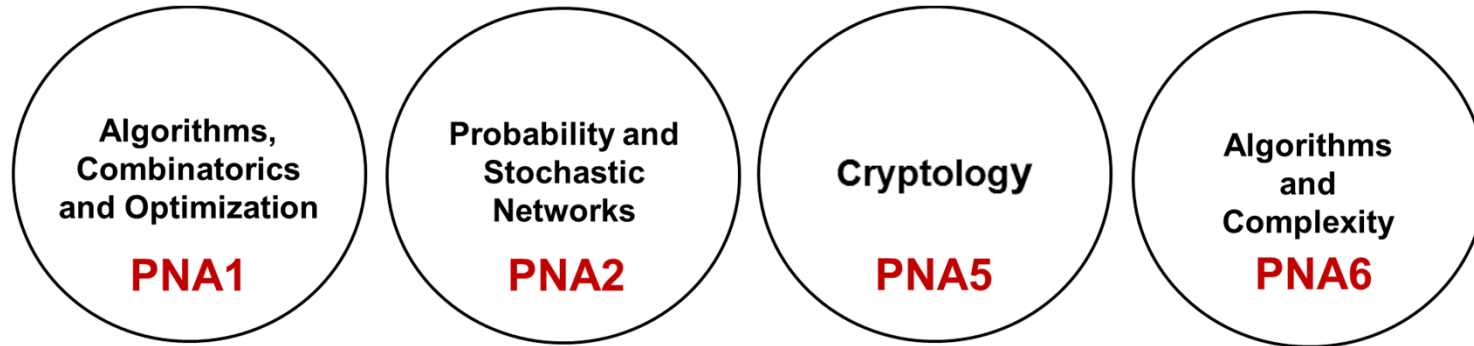
<u>**Mixture**</u> **of fundamental / curiosity-driven research and research motivated by applications**
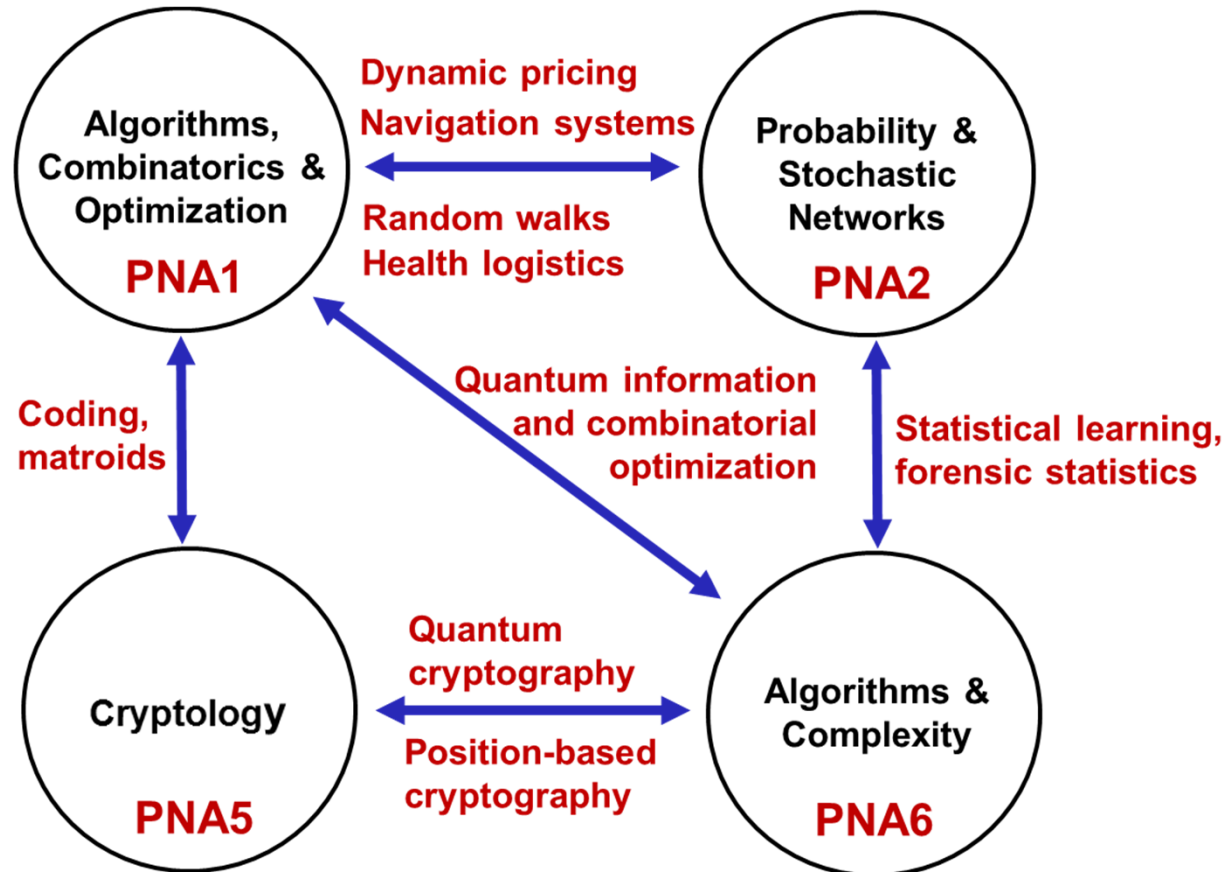
Strong contribution to <u>all four research themes</u>
- **societal logistics**
- **data explosion and learning**
- **life sciences**
- **software as service**

Broad international network of contacts, both in academia and industry

Cohesion within PNA
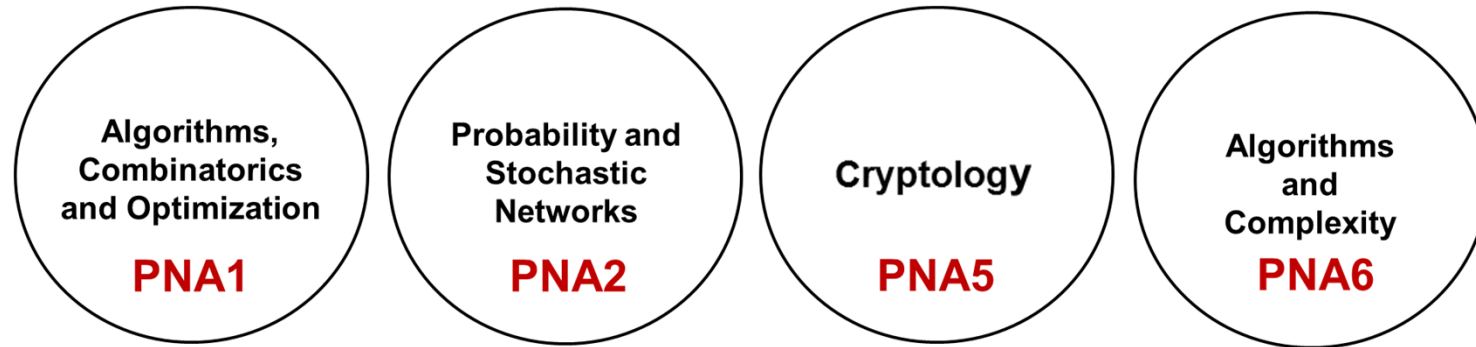
Probability, Networks and Algorithms (PNA)

Cluster structure facilitates <u>new</u> and <u>multi-disciplinary</u> research lines

Collaborations with CWI-groups outside of PNA: SEN1, SEN3, SEN4, MAC4

Viability of PNA

- **All groups are internationally <u>leading</u> and <u>visible</u>**

- **All groups obtain <u>prestigious research grants</u>**

  e.g., Spinoza, ERC, VICI 3x, VIDI 4x, VENI 6x, Sofya Kovalevskaya grant, NWO Free Competition 12x, NSF, ESF, EC 6FP, EC 7FP

- **All groups are <u>financially sound</u>**

- **Senior staff is talented and relatively <u>young</u>**

- **All groups are well-imbedded in internal and external communities and contact networks**

- **<u>Flexibility</u>: turn-over of group leaders and cluster leaders**

- **Ample possibilities for <u>multi-disciplinary</u> research, many collaborations within and outside of CWI**

Ambition

Probability, Networks and Algorithms (PNA)

| Algorithms, Combinatorics and Optimization **PNA1** | Probability and Stochastic Networks **PNA2** | Cryptology **PNA5** | Algorithms and Complexity **PNA6** |

- <u>Secure</u> and <u>expand</u> internationally leading positions of the individual groups

- Expand activities in the context of the current CWI <u>research themes</u>, and in the new theme "energy"

- Increased focus on <u>cross-fertilizing</u> our shared knowledge on fundamental mathematics