

# Research and Economy: Partners or „partners“

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Graz University of Technology

Founder and Head of the Institute of Nanostructured Materials and Photonics  
JOANNEUM RESEARCH, Weiz

Founder and CEO of LUMITECH Holding GmbH, Jennersdorf

1980

2006

# brief history



1980

The diagram features a horizontal timeline. At the top, a grey arrow points from left to right. Below it, a large orange arrow also points from left to right, starting from the same point as the grey arrow but ending further to the right. Two boxes containing the years '1980' and '2006' are positioned at the start and end of the grey arrow, respectively.

2006

# Physics of Advanced Materials

1980

FWF Project „Amorphous (CH)<sub>x</sub>“

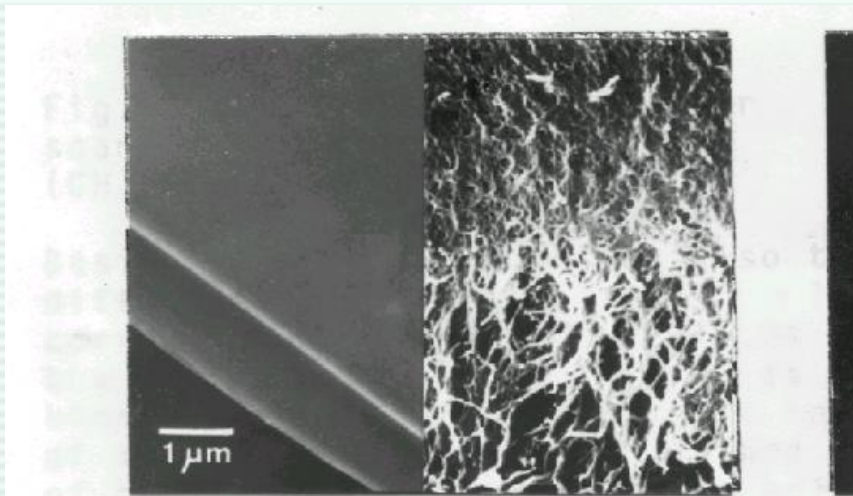


Fig.1 SE micrograph of present (left) and Shirakawa-type (right) samples

2006

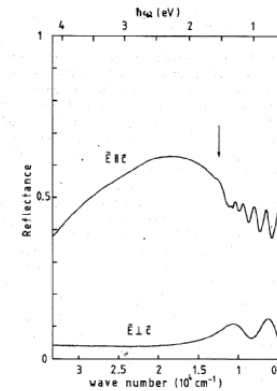


FIG. 1. Measured optical reflectivity of *trans*-polyacetylene for nearly normal incidence for polarization of the incident light parallel and perpendicular to the chain direction (the arrow indicates the feature mentioned in the text).

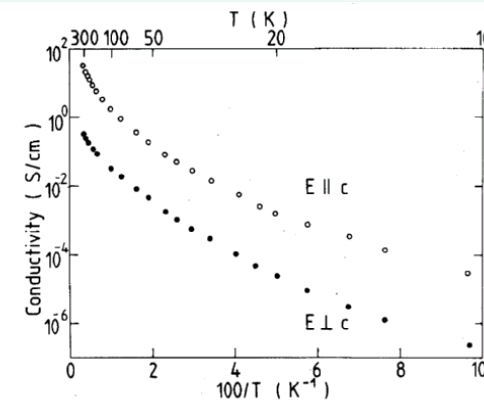
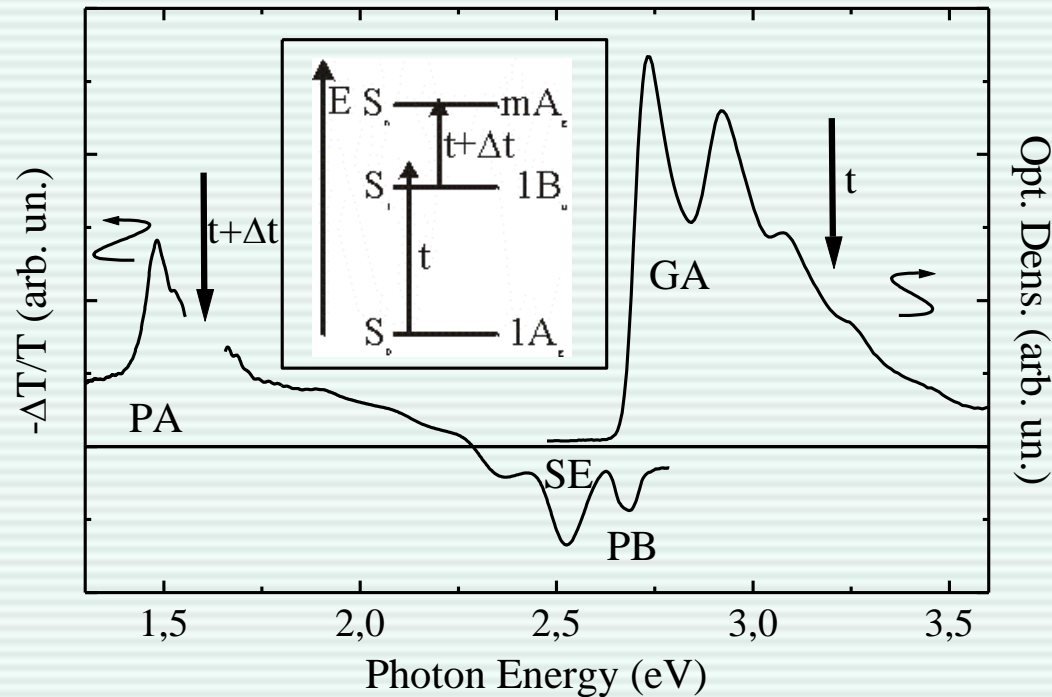


Abb. 6: Elektrische Leitfähigkeit eines mit I<sub>2</sub> dotierten hochkristallinen Polyacetylens (CH<sub>1.05</sub>)<sub>x</sub> in Abhängigkeit von der Kettenrichtung;

# Physics of Advanced Materials

1980

2006



Graupner W., Leising G., Lanzani G., Nisoli M., De Silvestri S., Scherf U.,  
*Femtosecond Relaxation of Photoexcitation in Poly(Para-Phenylene)-Type Ladderpolymer*  
Physical Review Letters 76, 5, 847-50, (1996)

# Physics of Advanced Materials



## Citation Impact

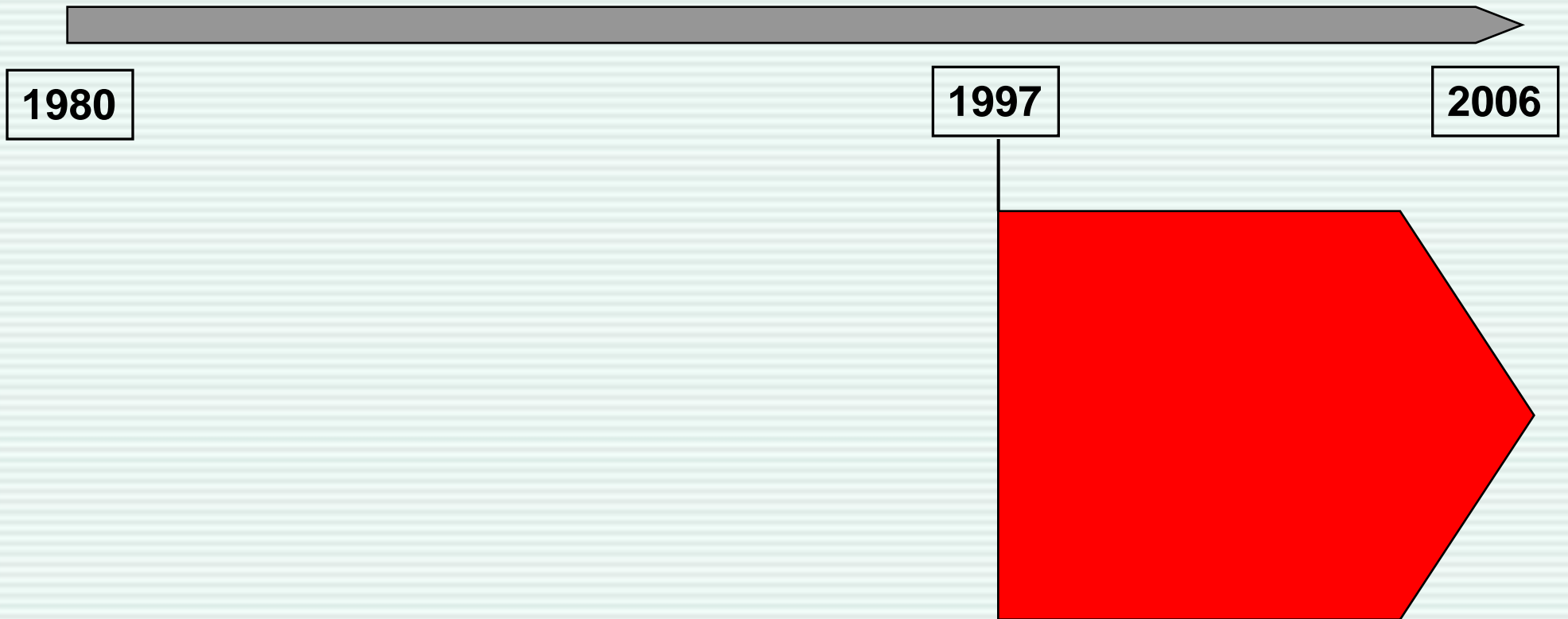
2006

*Advanced Materials* is the second highest citation impact (7.305) journal specializing in materials chemistry and *Advanced Functional Materials* is hot on its heels (4.798).

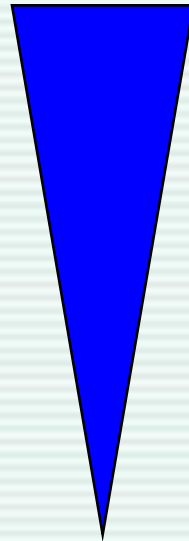
### The 10 most cited articles published in *Advanced Materials*

Author(s)	Reference	Title
1. G. Leising et. al.	1992, 4, 36	Realization of a Blue Light Emitting Device using PPP
2. F. Garnier et. al.	1990, 2, 592	All Organic Soft Thin Film Transistor ...
3. G. A. Ozin	1992, 4, 612	<b>Nanochemistry - Synthesis in Diminishing Dimensions</b>
4. P. Bäuerle	1992, 4, 102	End-Capped Oligothiophenes - New Model Compounds ...
5. I. Peterson et. al.	1990, 2, 309	Phase Diagrams of Monolayers of Long Chain Fatty Acids
6. H. Fuchs et. al.	1991, 3, 10	Ultrathin Organic Films - Molecular Architectures ...
7. H. Weller	1993, 5, 88	Quantized Semiconductor Particles ...
8. D. Wöhrle et. al.	1991, 3, 129	Organic Solar Cells ...
9. J. S. Miller et. al.	1991, 3, 309	A Molecular Ferromagnet with an 8.8 K $T_c$
10. T. T. Kodas et. al.	1991, 3, 246	Selective Low Temperature CVD of Copper ...





# LUMITECH Holding



**Foundation** (11.12.1997)

**LUMITECH** Univ.Prof.Dr.Leising & Dr.Tasch OEG

Produktion&Entwicklung

St.Martin a.d.Raab - Spin-Off TU Graz

**Start-up** (1.4.1998)

Identification of business areas

**Start volume production** (1.1.2001)

Joint Venture with TRIDONIC.ATCO ->

**TRIDONIC OPTOELECTRONICS**

**Production and Sales** (1.9.2001)

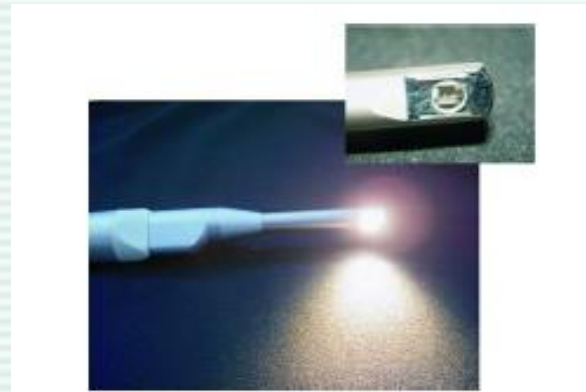
**LUMITECH Produktion & Entwicklung GmbH**

Move to Technology Center in Jennersdorf  
(South Burgenland)

**LEXEDIS Lighting** JV with Toyoda Gosai



# LEDs



1980

1999

2006

.....  
**α TRADITION of INNOVATION**

ISO 9001 certified

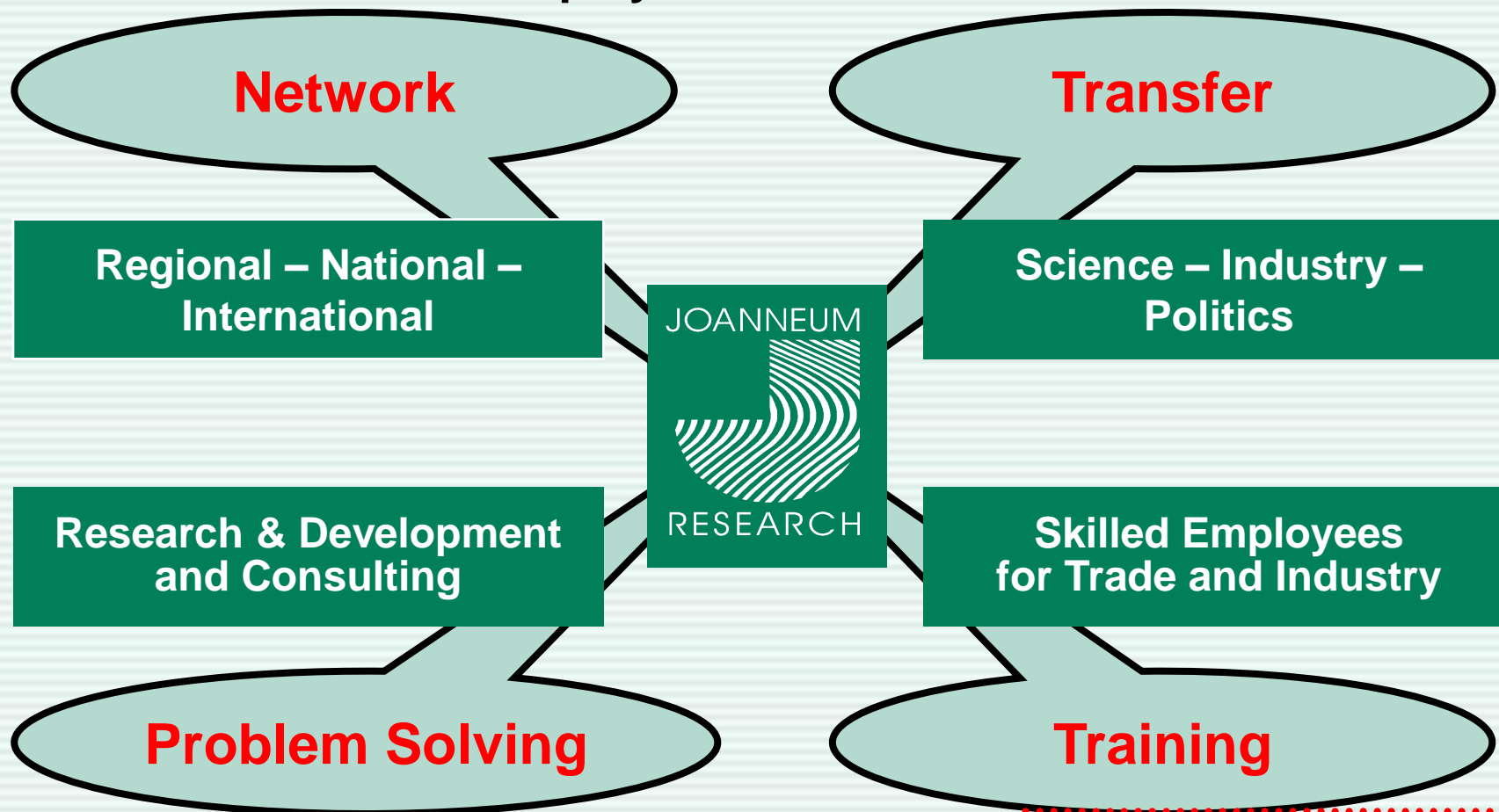
# Institut für Nanostrukturierte Materialien und Photonik (NMP)



Province of  
Styria



15 Institutes 380 employees



α TRADITION of INNOVATION

## **Founding of the Institute :**

**November 1999 im Weizer Energie  
und Innovationszentrum (W.E.I.Z.)  
(Univ.Prof.Dr.G.Leising, Univ.Prof.Dr.W.Papousek)**

**Head of the Institute: Univ.Prof.Dr.Günther Leising**

**Personal : 36**

**Office Space : 400 m<sup>2</sup>**

**Lab Space : 300 m<sup>2</sup>**

**Research Investment (until 06/2006): 3,500.000 €**

**Fraction Contract Research: ~ 40%**

# NanoTecCenter-Weiz GmbH

**Joint venture (50:50)**

**2004/5 /6**





TUG NTCW

NMP, CD-Labors

IF, ICTOS, Felmi/ZFE, IEP

Organische OptoElektronik  
und (Bio)Sensorik  
NanoOptik  
Synthesis  
Advanced Materials  
Gedruckte Elektronik  
NanoMaterialien  
NanoAnalytik  
Photonik

**2002**




NMP & CD-Labor

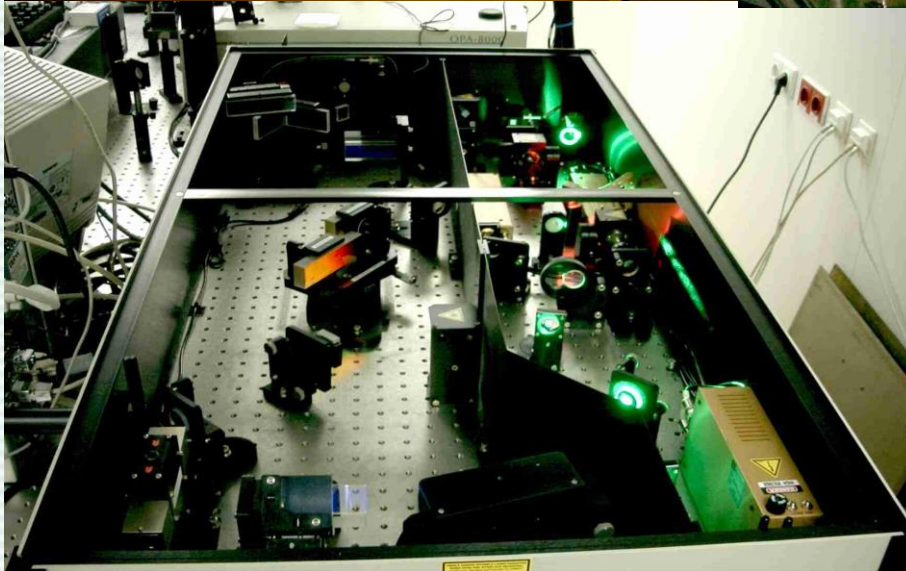
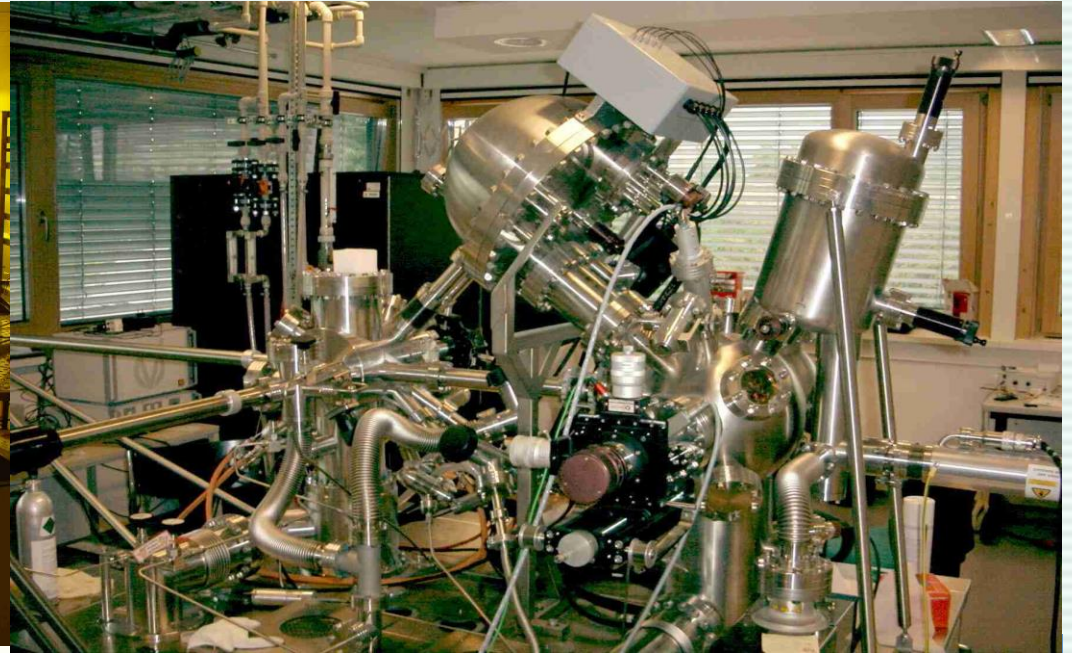
Advanced Materials  
Gedruckte Elektronik  
NanoMaterialien  
NanoAnalytik  
Photonik

**1999**

NMP



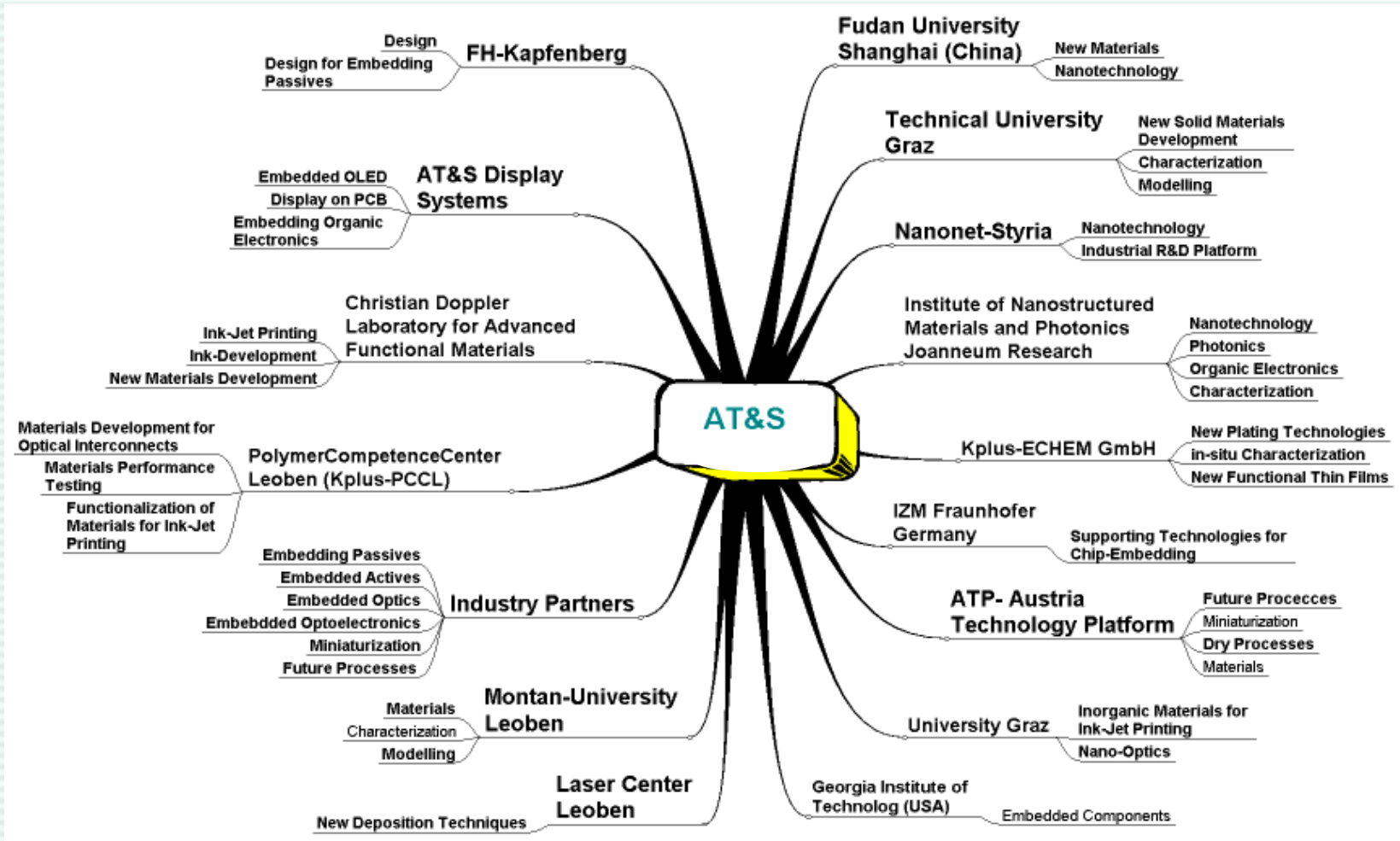
NanoMaterialien  
NanoAnalytik  
Photonik

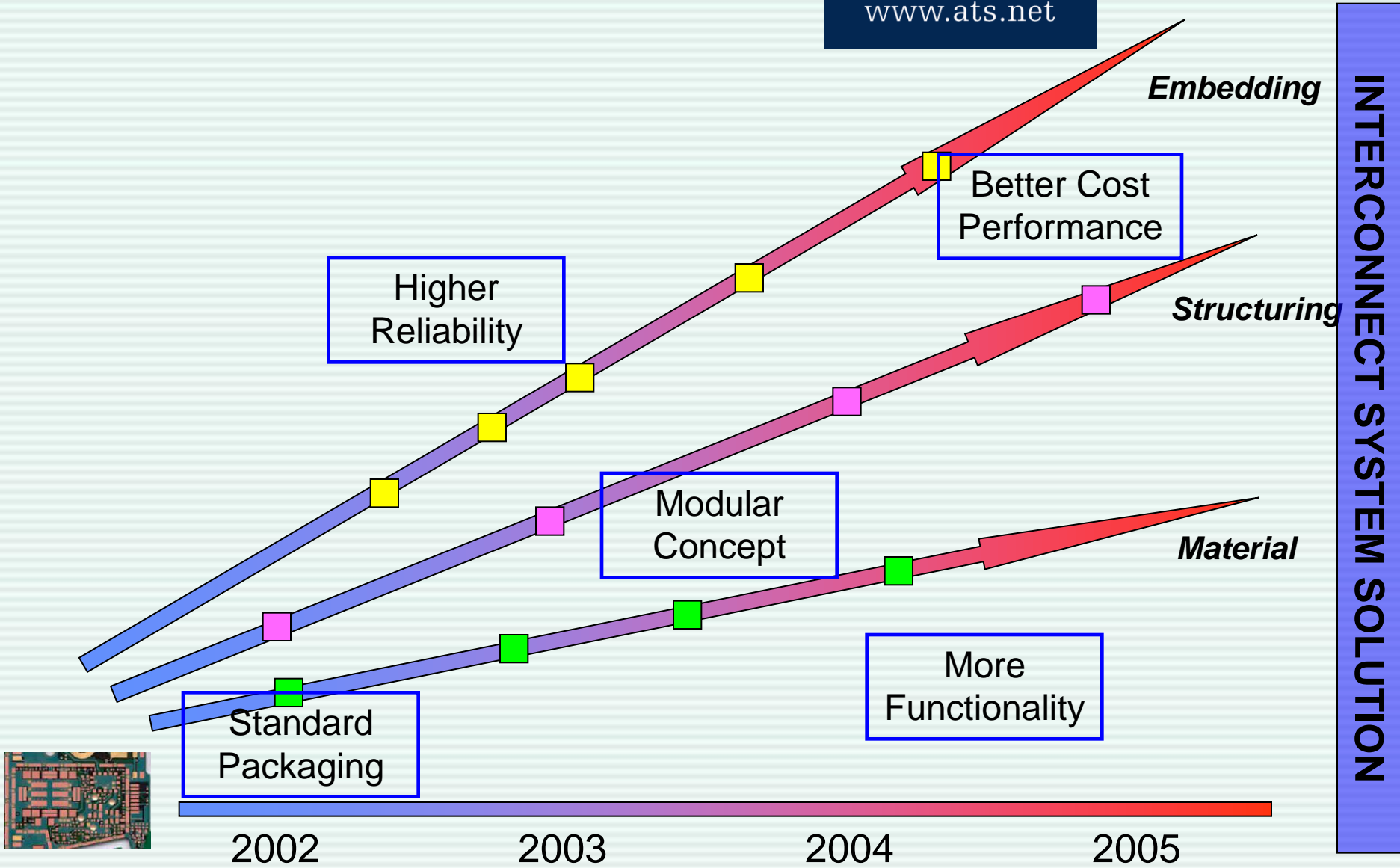






# Science & Technology Network





**What is urgently needed ?**

# Strategy 1

## -> CONFIDENCE

Clear commitment **STRENGTHEN STRENGTHES**  
(lead topics, USPs) and *more than you can eat* money  
for universities

### Bottom up

-> strengthen and support excellent researcher  
individuals and Research Teams

### Top down

-> strongly support new Research activities and  
areas with longterm effect  
(Example: high-tech machinery, processes)

What is urgently needed ?

## Strategy 2

What is urgently needed ?

### Current weaknesses of university research to be eliminated

- Research planing (a random sum of project is not a strategy)
- Projectmanagement
  - Timeplaning
  - Meilenstones
  - proactive management of resources
- Qualitymanagement
  - Definition of Processes

# IP: Patents, know-how

What is urgently needed ?

**Clear and communicable Position  
and  
clear contract situations:**

- Patentmanagement
- preexisting rights
- achievements and know-how
- utilisation

# Teaching and Research

What is urgently needed ?

- „BRANDING“
- Strategy
- Teaching- and Trainingcooperations

# Cooperations

What is urgently needed ?

- **International Cooperations work well**
- **there is huge potential in regional and national cooperations**



# Evaluation

What is urgently needed ?

- should not end in itself – better in the sense of a „final costing“

## Examples of measures – „Mission Indicators“

- Breakthrough ideas and findings (solidified)
- Filed Patents
- Implemented concepts
- accepted Publications (impact factor > 1.5)
- Invited talks
- Implemented profitable concepts

# Thank you !