

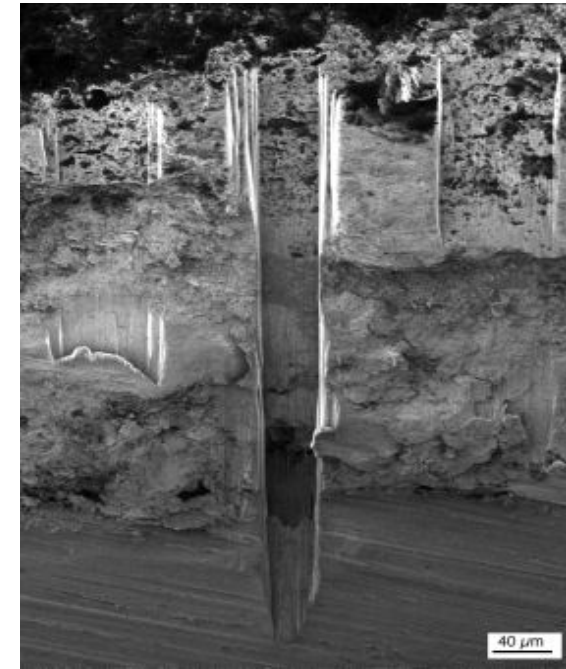
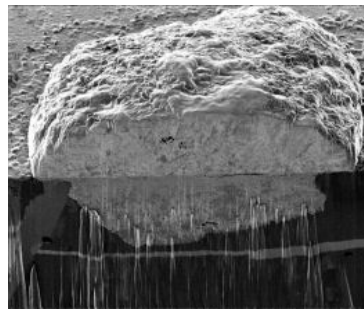
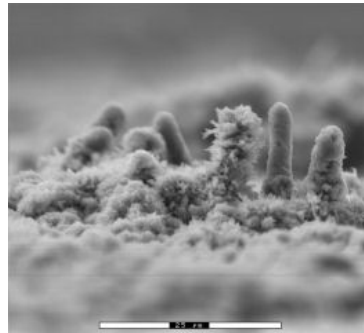
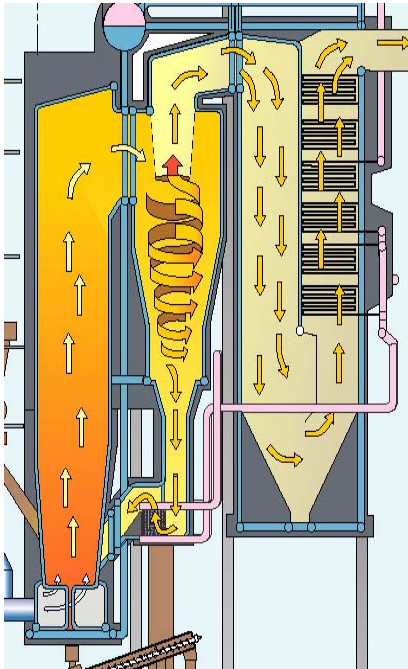


The High Temperature Corrosion Centre

– Research for a sustainable society



Lars-Gunnar Johansson





Towards a new HTC contract 2018-2021 !



Industrial
relevance



For a sustainable
energy system

Scientific excellence



Member companies



Swedish Energy Agency



For a
ener



Chalmers and others

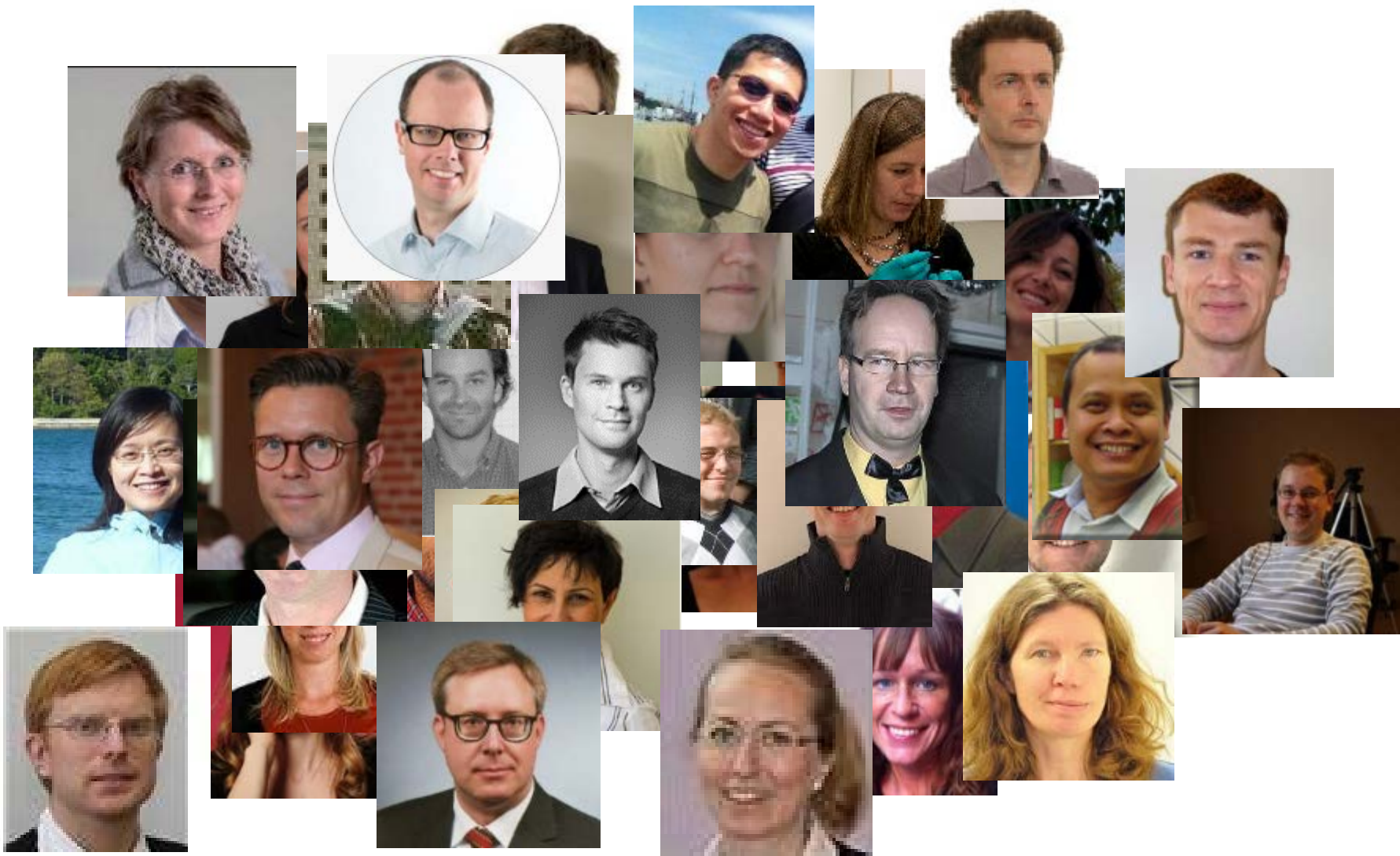


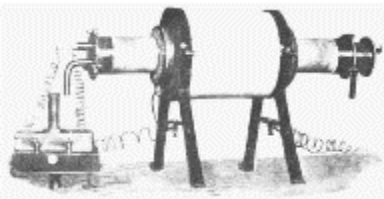
**SCIENCE
RULES**

Where are we now? What did we achieve so far?

During 20 years HTC has built a strong research
environment

44 Ph.D.s since 1996!

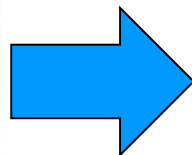




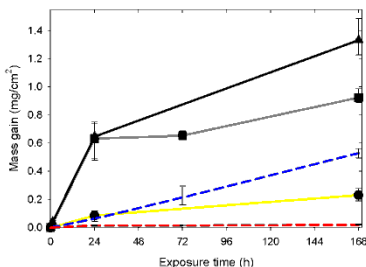
One “borrowed” furnace



> 100 furnaces. “*Largest HTC lab in the world*”

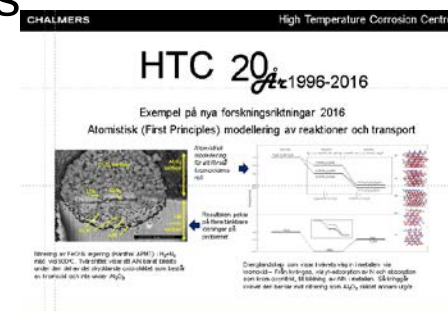
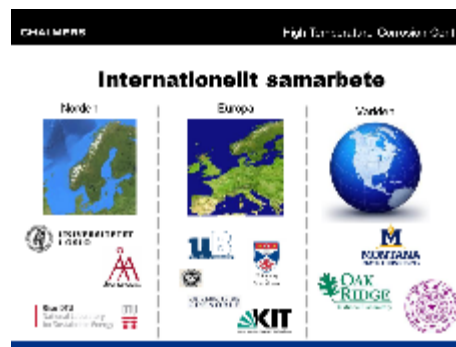


State-of-the-art microscopy and post-analysis



HTC – Sweden only

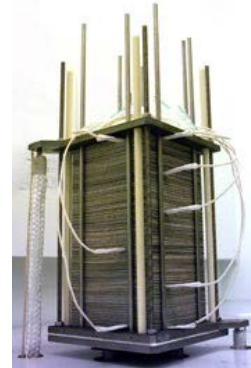
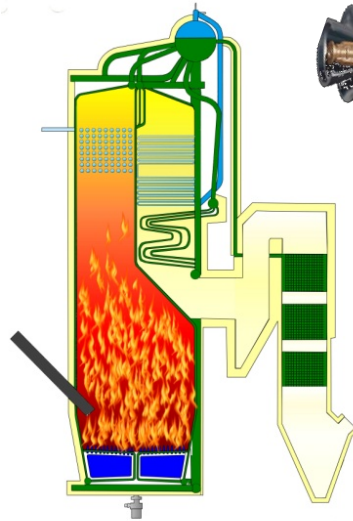
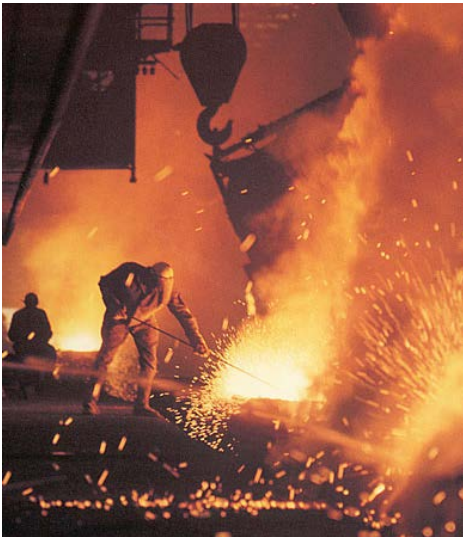
1996



New scientific approach

2016

The member companies (2014 - 2017)



- Sandvik Materials Technology
- Sandvik Heating Technology
- Castolin

- Valmet
- Amec FosterWheeler
- Völund
- Andritz
- Cortus
- Haldor Topsoe

- GKN Aerospace
- Siemens Ind. Turbomachinery

SME's:

- Entech
- Janfire
- NIBE
- Powercell

Energiforsk representing:

- Vattenfall
- EON Värme
- Fortum Värme
- Göteborg Energi
- Mälarenergi
- Linköping Tekn. V

The research groups (2014 - 2017)

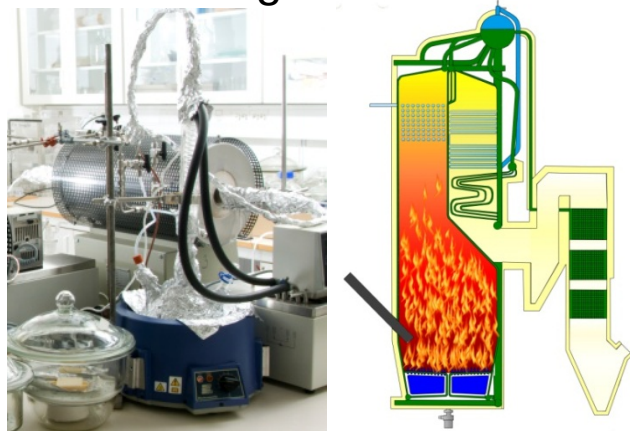
- *Energy and Materials, Chalmers*
- *Materials and Microstructure, Chalmers*
- *Corrosion Science, KTH*
- *Swerea-KIMAB*
- *Swerea-IVF*



swerea | KIMAB
swerea | IVF

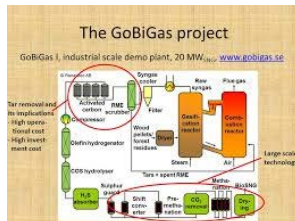
HTC research areas

Renewable fuels – More efficient power generation and gasification



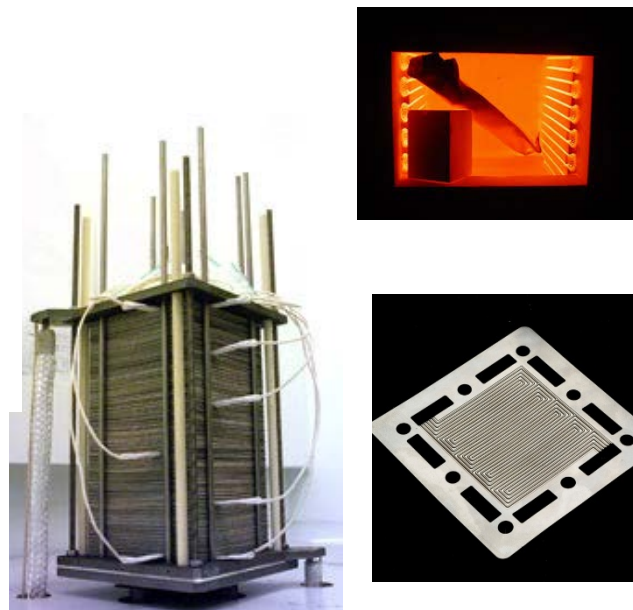
Lab

Fält



- Oxidation of low-alloy-, stainless- and alumina-forming steels
- Corrosive gases and deposits

Corrosion resistant materials for the energy system of tomorrow



- Oxidation of FeCr, FeCrAl
- SOFC/SOEC - combating corrosion and chromium volatilization by nanolayers
- low pO_2 environments

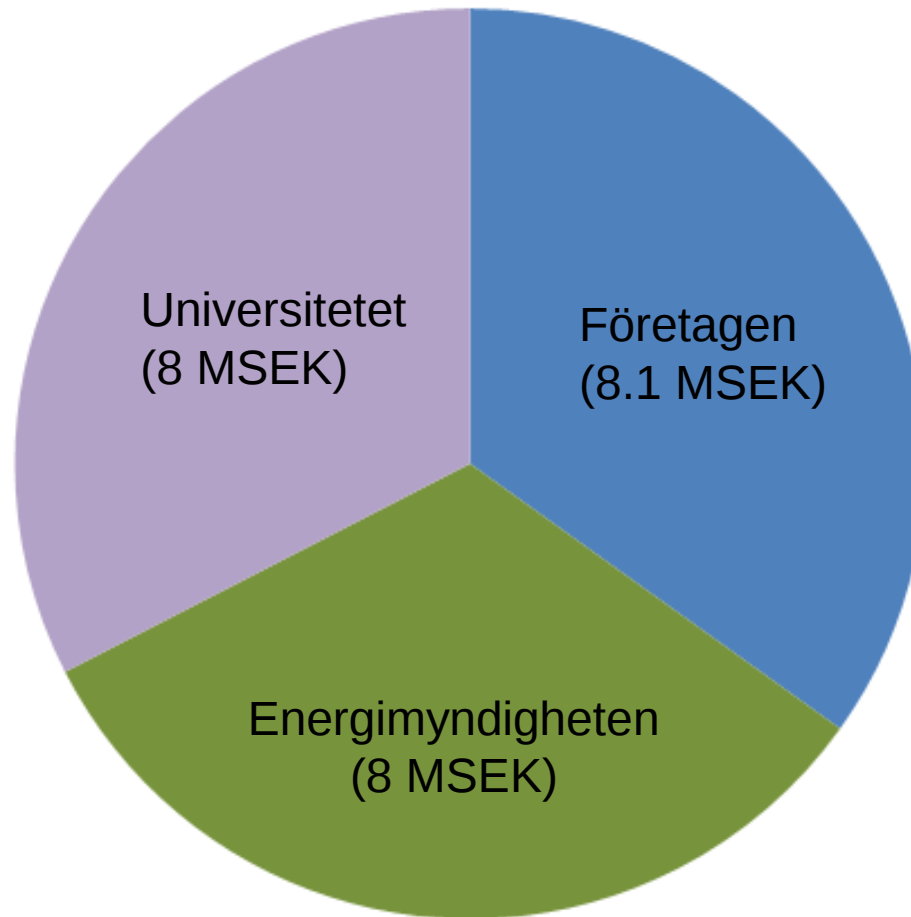
Energy conversion



- Oxidation-assisted crack growth in superalloys
- Oxy-fuel corrosion of superalloys
- Oxidation of FeCr, FeCrAl

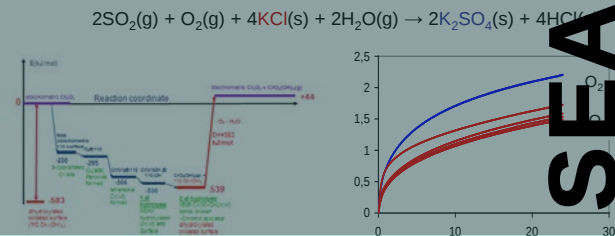
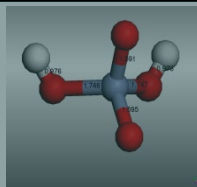
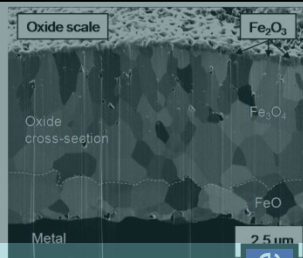
The present HTC contract

(per annum)

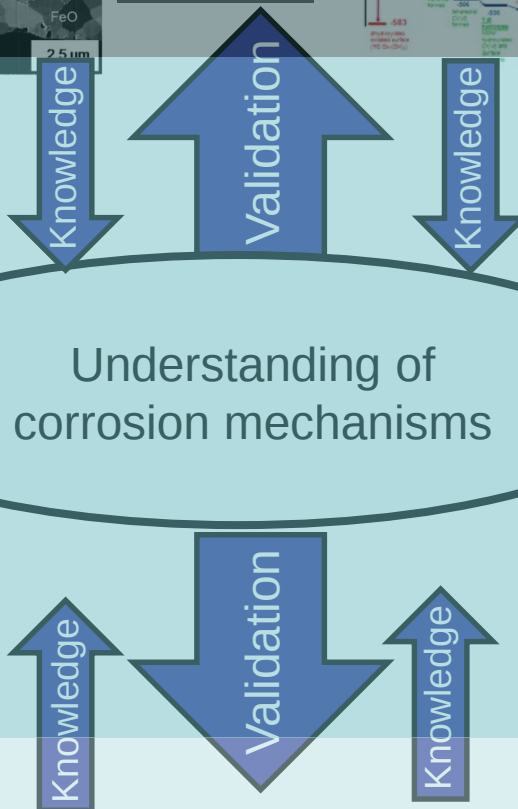


Whereof cash paid to HTC 12M/year

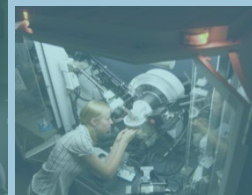
Research on
model systems



SEA
-VR,
SSF



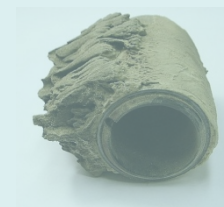
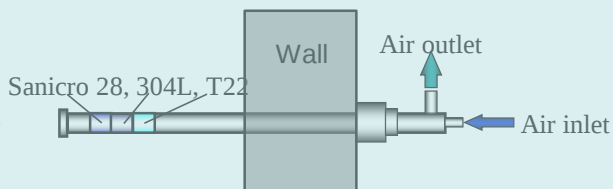
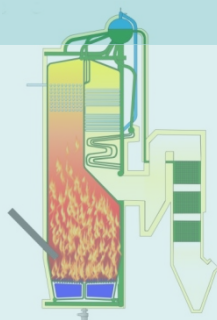
Intelligent
exposures



Multiple analytical
approach

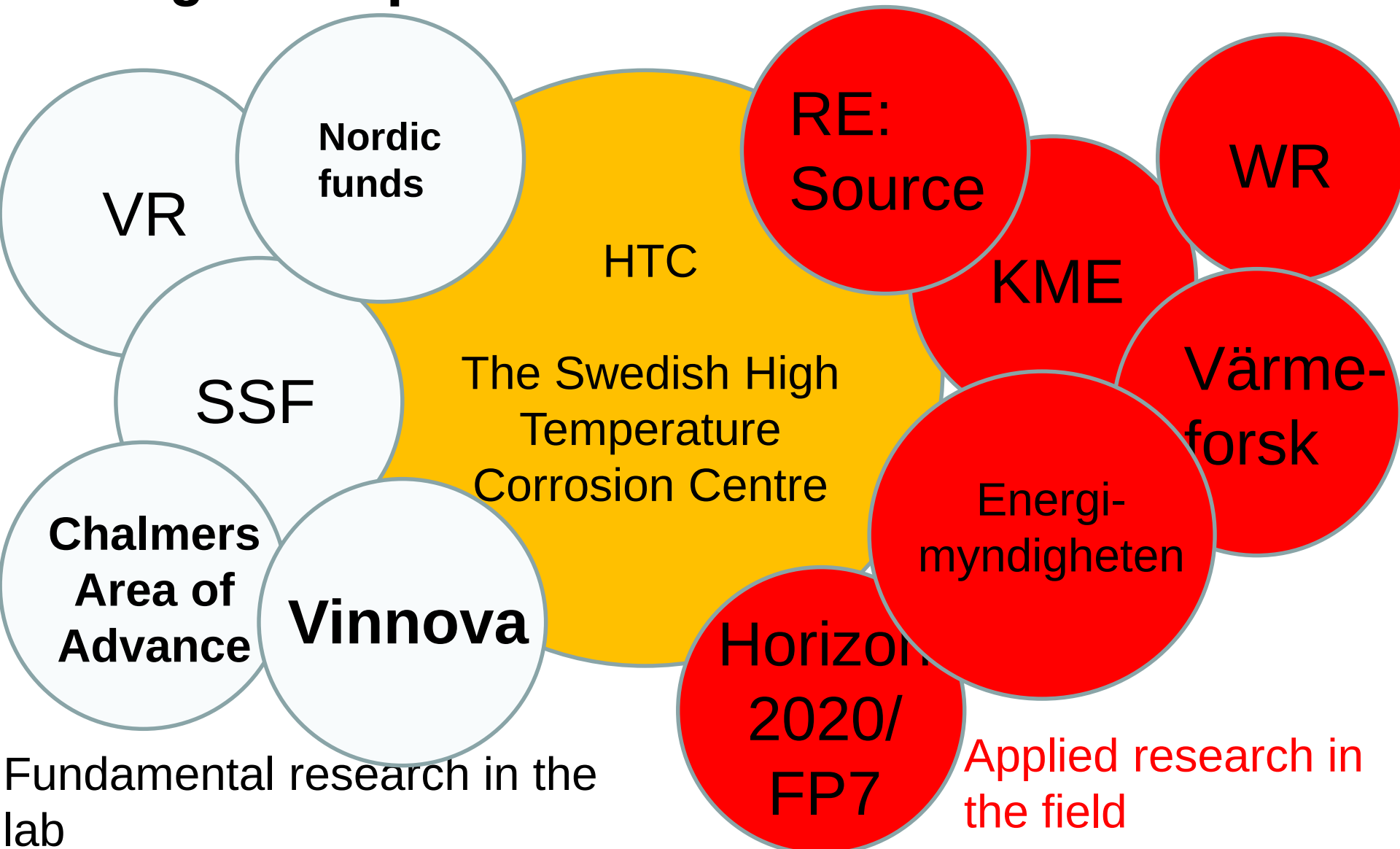
HTC

Field exposures



SEA -
KME

HTC is a Swedish cluster for High Temperature Corrosion research



HTC 20^{år} 1996-2016

Är vi nöjda och stolta?

JA!

Hårt arbetande geni



The trip has just begun!



**University researchers
and company R&D:**

**Please use this conference to discuss
research ideas for a new HTC contract
2018-2012!**