European Network on New Sensing Technologies for Air Pollution Control and Environmental Sustainability - *EuNetAir*

COST Action TD1105

WGs and MC Meeting at LINKOPING, 3 - 5 June 2015

Action Start date: 01/07/2012 - Action End date: 30/06/2016

Year 3: 1 July 2014 - 30 June 2015 (*Ongoing Action*)

SILICON CARBIDE SENSOR SYSTEMS FOR HARSH ENVIRONMENT MARKET APPLICATIONS

Mike Andersson

MC member substitute to substitute to substitute

SenSiC AB, Kista, Stockholm, Sweden

COST is supported by the EU Framework Programme

ESF provides the COST Office through a European Commission contract

Company presentation

SENSIC
Clean air sensors

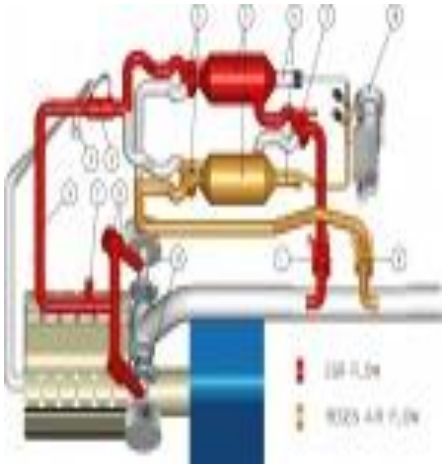
SenSiC

develops and supplies gas sensors

based on SiC technology for

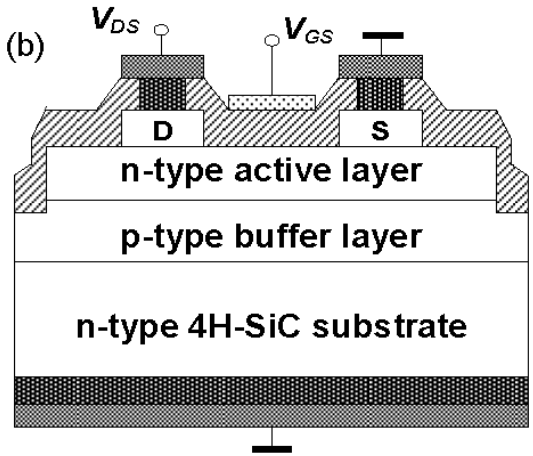
direct detection of emissions in

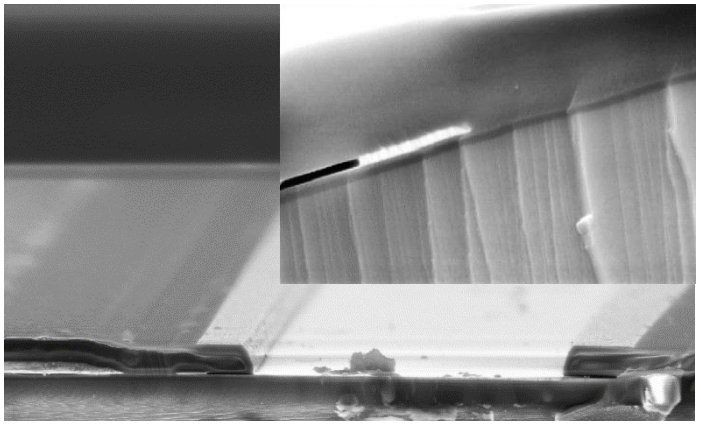
combustion gases

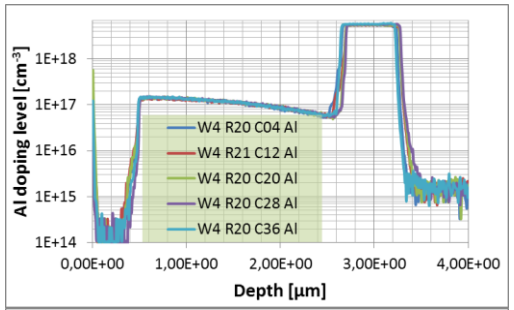


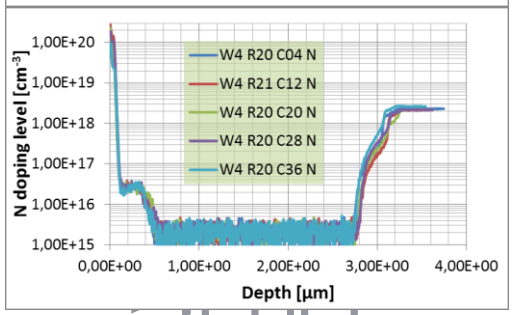
Sensor Technology/ Production

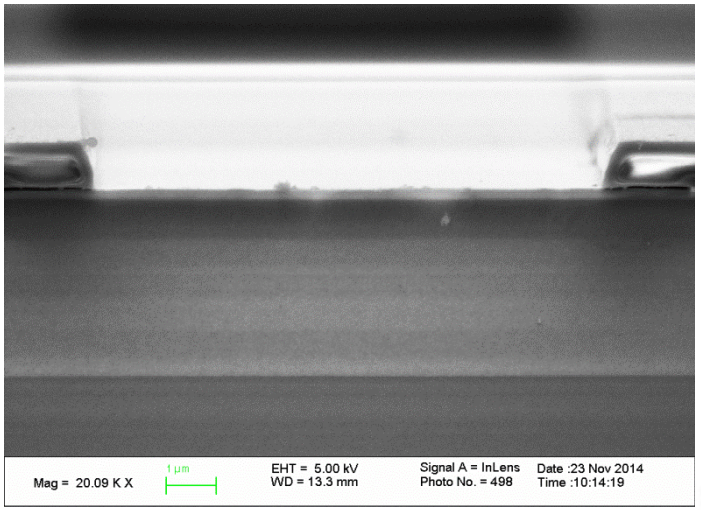
SENSIC
Clean air sensors



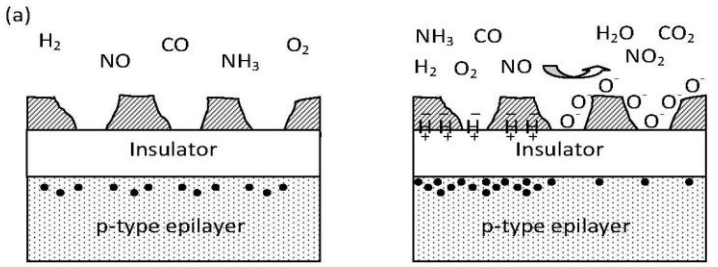


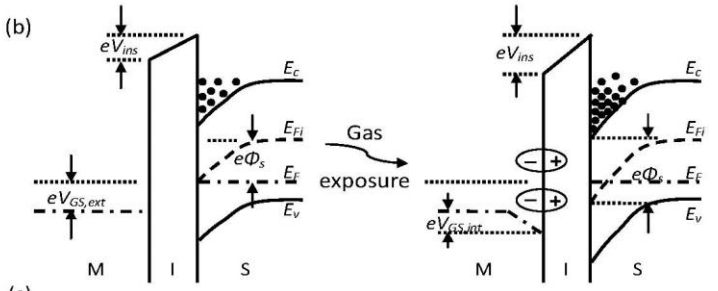


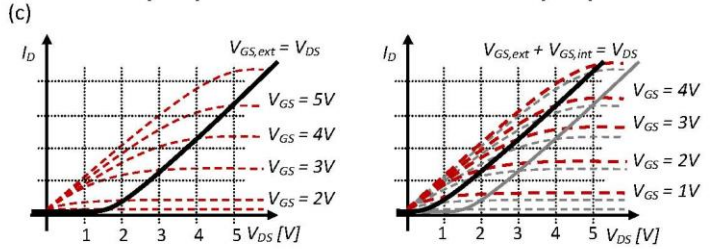


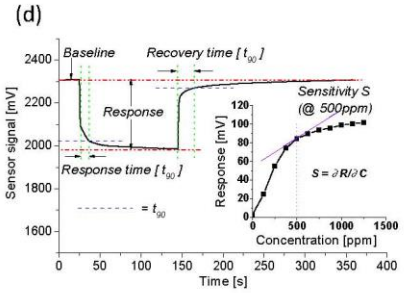


Good process control and characterization needed





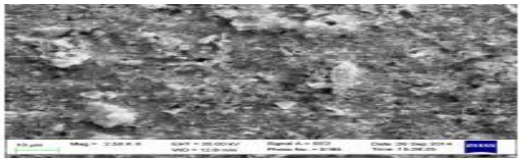


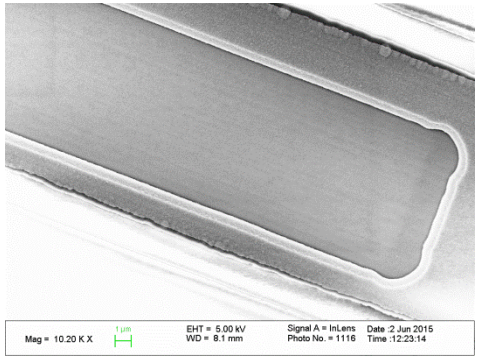


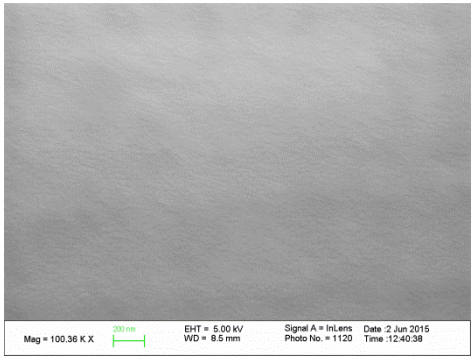
Sensor production cont.

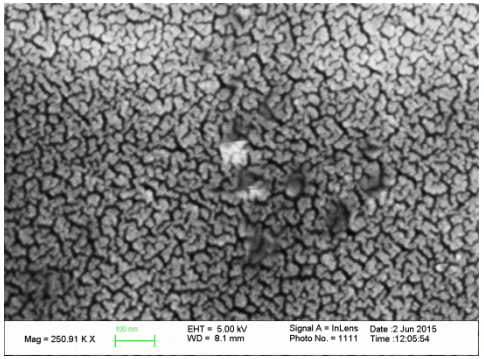
SENSIC
Clean air sensors

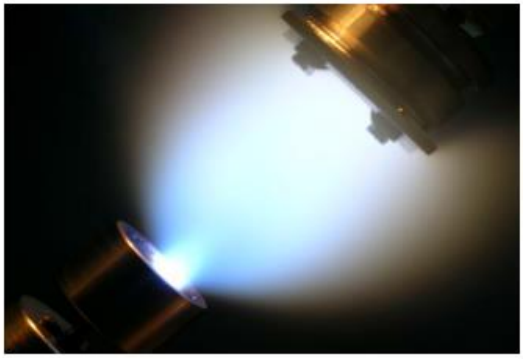
- Informed choice of process methods, e.g. sputtering (metallisations) PLD (complex metal oxides, epitaxy)



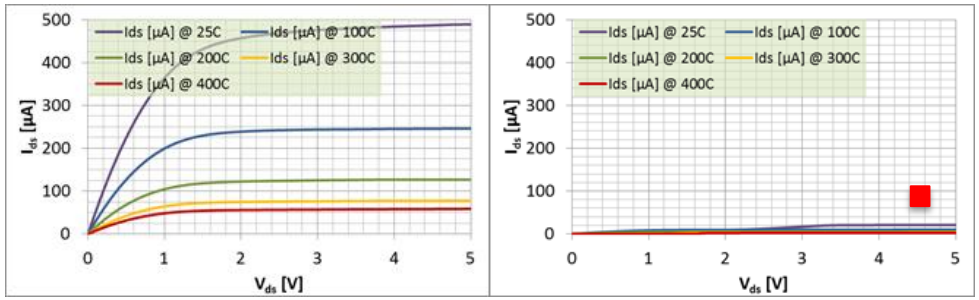


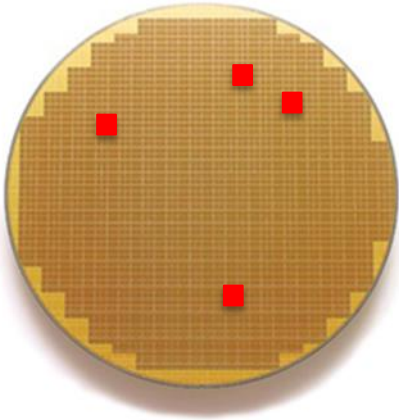


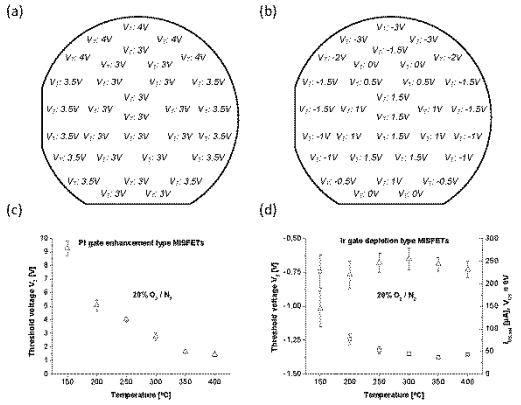




- Electrical on-wafer measurements for quality testing and device selection





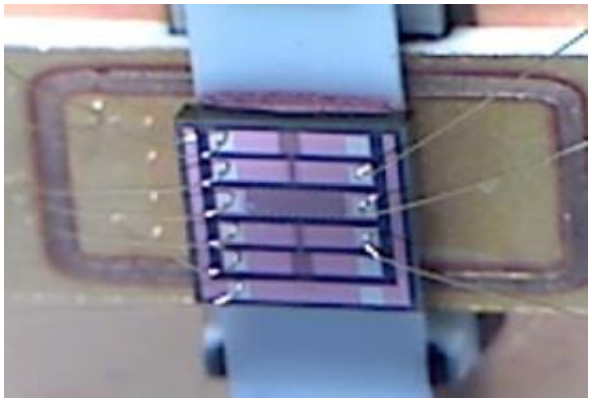


cost
EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

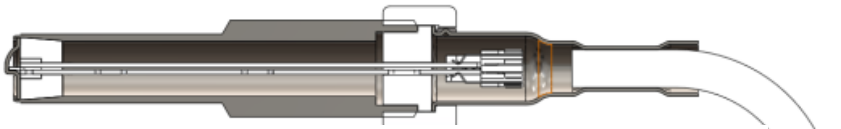
Sensor production, cont.

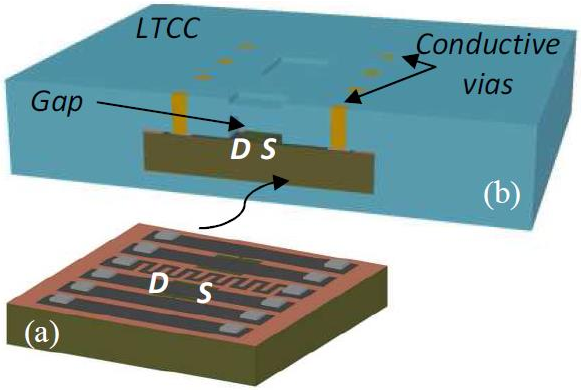
SENSIC
Clean air sensors

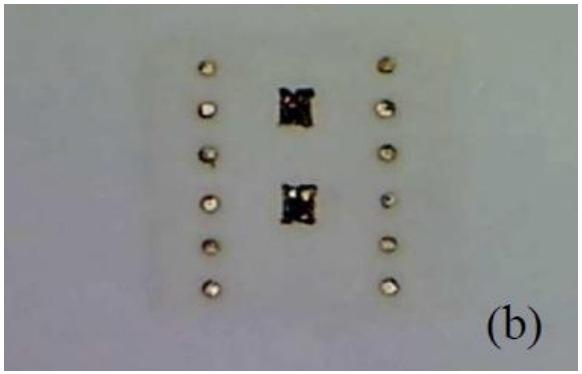
- Cheap and scalable wafer processing well-established

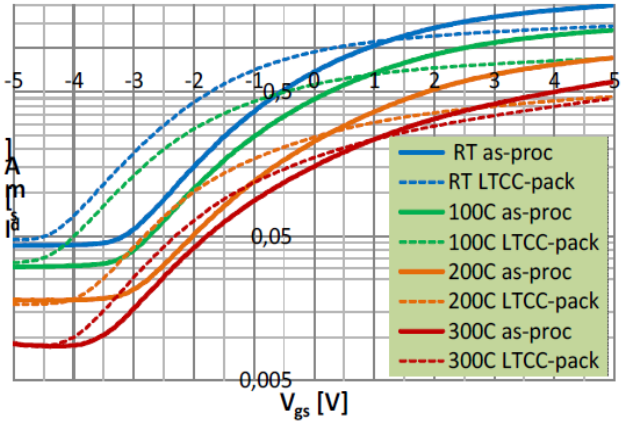


- Packaging development





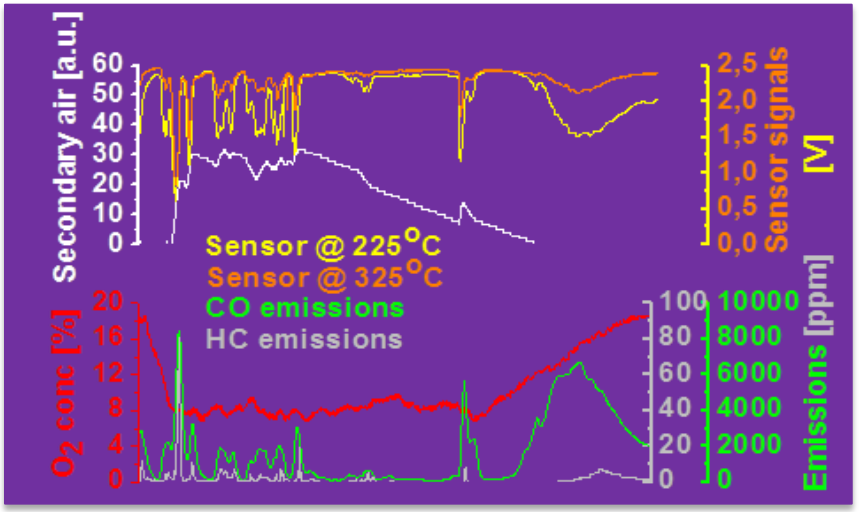


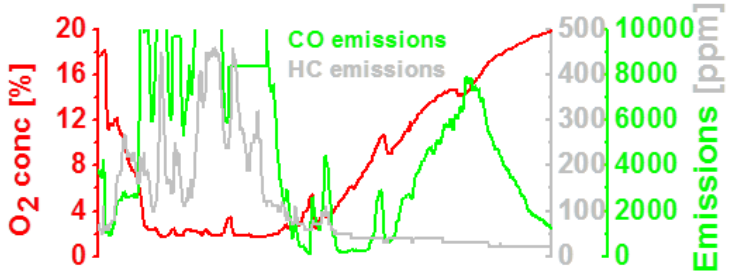


Sensor applications

SENSIC
Clean air sensors

- Sensor system (CO/ O_2) to control the combustion in small and medium scale bioheaters – higher efficiency and lower emissions

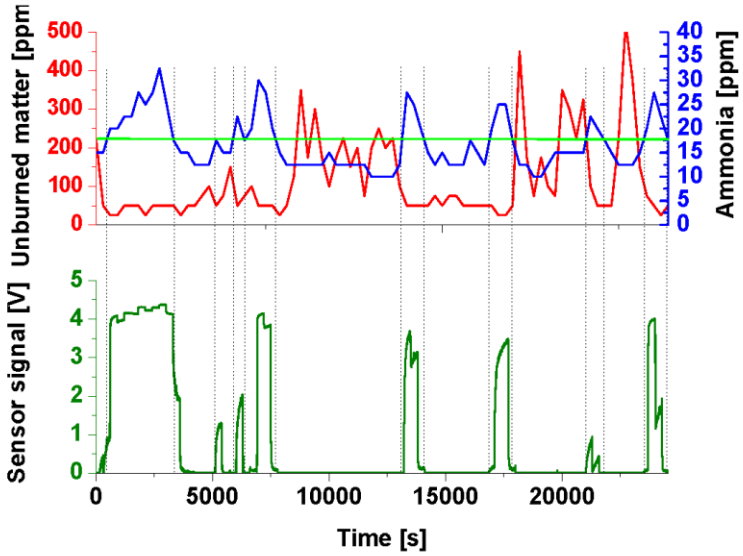


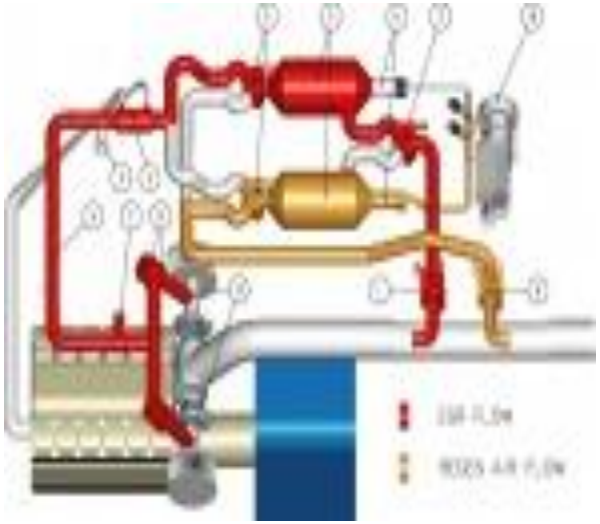


Sensor applications, cont.

SENSIC
Clean air sensors

- Ammonia sensor for control of SCR in diesel engines, trucks and stationary combined heat and power plants – lower emissions





Sensors in the pipeline

SENSIC
Clean air sensors

- NO_x sensor for control purposes in exhaust gases of trucks
- O_2 sensor to controle EGR, exhaust gas recirculation in engines

Projects together with car industry financed by The Swedish Energy Agency and VINNOVA

SENSIC
Clean air sensors

Suggested R&I Needs for future research to Action WGs/SIGs General Assembly

- New even more selective sensing layers
- Algorithms to use e.g. temperature cycling operation on line and in “continuous” operation
- Even more advanced packaging
- More possibilities for field testing

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LTCC