ArenaProjekt: SMF-Flyg
A tool for industrial development and collaboration between companies and research institutes

K.Giannadakis

Swerea SICOMP AB
Bröderna Ugglas Gata, Hus 208, 581 88, Linköping
mailto: konstantinos.giannadakis@swerea.se

innovair

swerea
swedish research

Activities 2015-2016: Supporting SME's within development of new research proposals

The arena project has provided support in formulating and completing project proposals:

- Vinnova: Innovation I Företag (*Nordic Aircraft*)
- LIGHTer-Reduction of Cycle Times in CFRP production (*Corebon*)
- CleanSky 2; UpRise (*Creo Dynamics*)
- Vinnova: SENAI: Flexible automation for cost-effective aircraft manufacturing (*Prodtex, X-Laser Systems*)
- **ArenaProjekt**: SMF-Flyg

ArenaProjekt: SMF-Flyg Project types

Level 1 projects

- Level 1 projects provide support to SMEs and aim to enhance their R&D capabilities in strategic areas that need to be developed within a budget of 125 000 SEK.

Level 2 projects

- A maximum of 325 000 SEK may be granted from NFFP and a typical project duration is 3-6 months. Typically, support can be provided with up to 50% of the project costs

ArenaProjekt: SMF-Flyg Successful proposals

1. Step Pattent (Oxeon, SICOMP), *150kSEK*
2. Displacement and strain analysis of composite laminated beams subjected to bending (Flexprop, SICOMP, Saab, IVF, ACREO), *600kSEK*
3. Högpresterande termoplastkompositer för flygindustrin - en förstudie (Inxide, SICOMP), *115kSEK*
4. Experimental investigation of damage formation in thin-ply composites (Oxeon, SICOMP, Saab), *125kSEK*
5. Gap-analysis (Marströms, SICOMP), *115kSEK*
6. Peel ply effect on single lap joints (Nordic Aircraft, SICOMP), *130kSEK*
7. Automated removal of backing paper (Carbocomp, SICOMP), *115kSEK*

2015

8. Utredning av Elitkomposit och Marström Composite som tänkbara leverantörer av kompositartiklar till Saab (Marströms, Elitkomposit, SICOMP, SAAB), *325kSEK*
9. Evaluation of thermal-stress-induced deformations in thin ply composite structures (Oxeon, SICOMP, Saab), *125kSEK*
10. Förstudie av införande av bränsleövertryck i tank för ökad flyghöjd (CybAero, SICOMP), *125kSEK*
11. Design and optimisation of a composite fuel tank used in unmanned helicopters (CybAero, SICOMP), *625kSEK*
12. Design and optimisation of composite tools and evaluation of tool/part interaction (Nordic Aircraft, SICOMP), *625kSEK*
13. Development of Simple Toolbox to Design and Optimize Composite Beams (Flexprop, SICOMP), *625kSEK*

2016


oXeon
INXIDE
Smart Composite Solutions
elitkomposit
swerea | SICOMP
innovair
CarboComp
carbon composites
FlexProp
Performance by competence
NORDIC AIRCRAFT
Marström
CybAero
Increasing human safety
innovair
COMPRASER LABS
swerea
swedish research

Inxide; Thermoplastic Composites vs Thermoset Composites (L1)

Improved Properties

- Tougher, good fatigue performance – 4x tougher than toughened epoxies
- Damage tolerant
- Insensitive to moisture
- High temperature performance
- Very low flammability, smoke, toxicity
- Low residual stress in molded parts
- Excellent chemical resistance

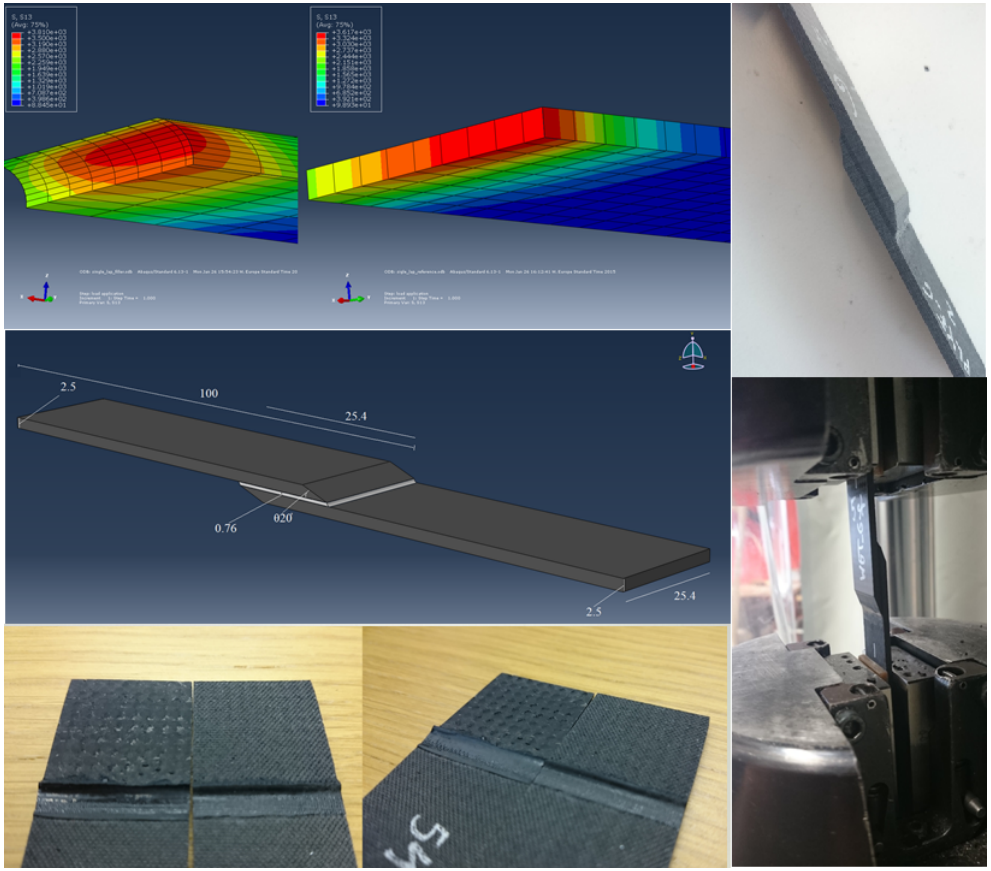
Improved Processing

- Eliminate bagging materials and labor
- Eliminating autoclave possible
- Rapid processing vs. thermosets
- Can be reformed
- Simple, longer-lasting tool
- Fusion bonding eliminates fasteners
- and adhesives

Green processing

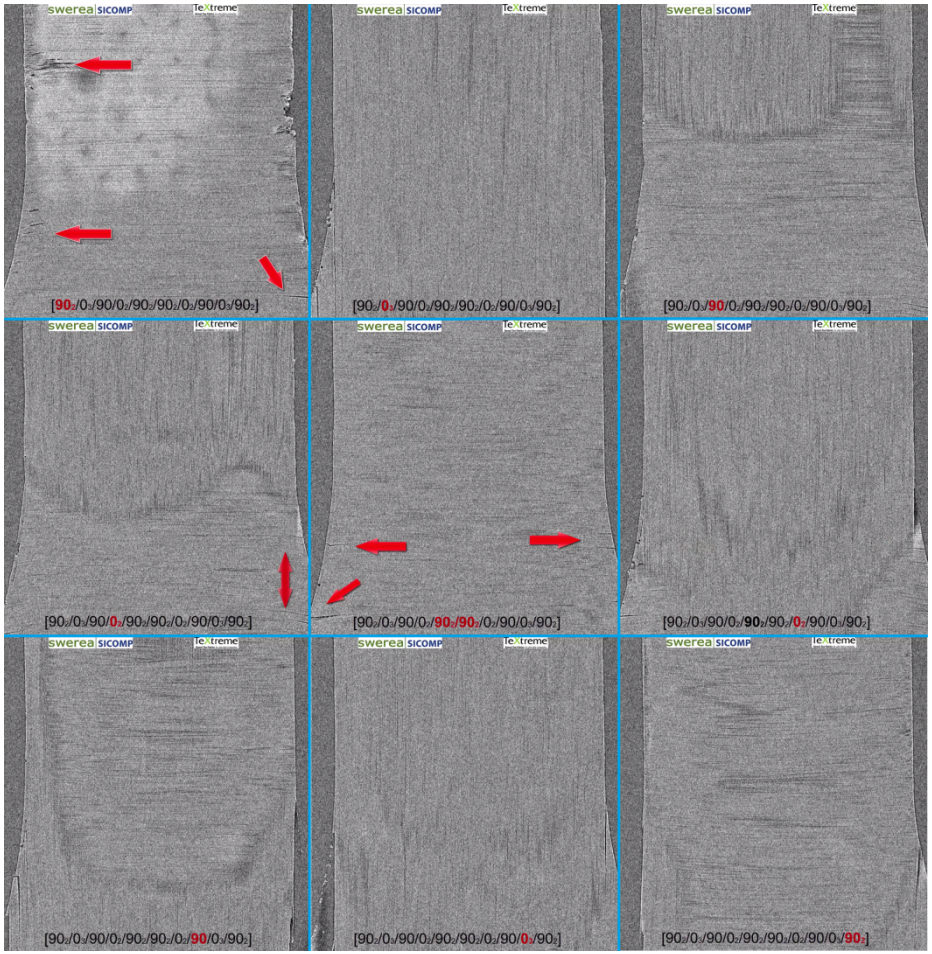
Nordic Aircraft: Surface preparation prion to adhesion (L1) and Spring-Back effects in the aircraft desgin (L2)

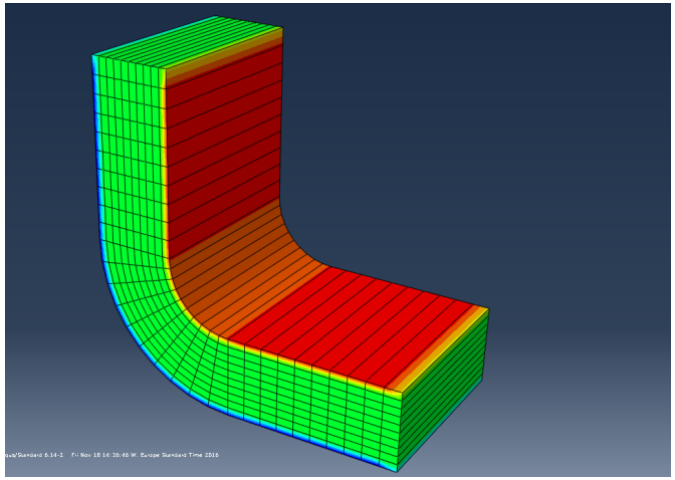
- Time effectiveness within surface preparation for single lap joints
- Study the tool-part interaction and the combined curing geometrical discortions within manufacturing of aircraft parts



NORDIC AIRCRAFT innovair COMPRASER LABS swerea swedish research

Oxeon: Damage development (L1) and curing distortion effects (L1)





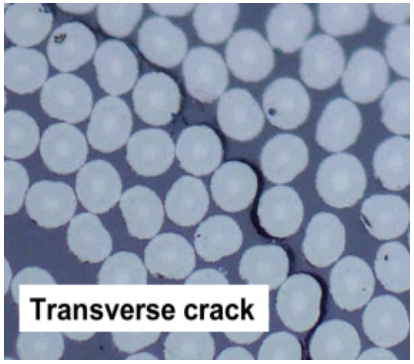
- Mechanical Damage Development within thin-ply composites
- Study of the thermal distortion effects during manufacturing with thin ply composites

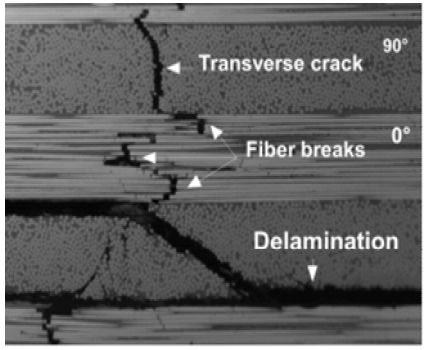
CybAero: Development of a lightweight tank design (L1+L2)

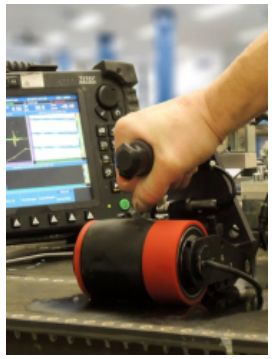
- Detailed design of CybAero's fuel tank
- Experimental material characterisation
- Full scale evaluation of detailed design

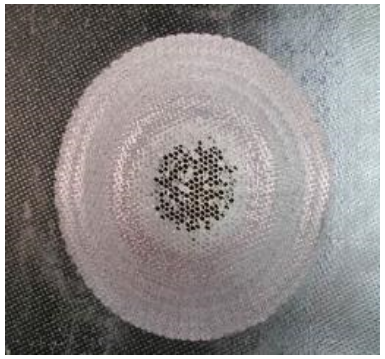
Upcoming Seminar for SME's on:
Characterization of Damaged Composite Structures and Repairs

- Damage in Composite materials: From microscale to macroscale
- Characterization of damage: **Destructive** and **Non-destructive** Techniques
- Repair: Stepped repair and Scarf repair









Presentations will be given by experts from Swerea SICOMP and Exova

Wednesday 10th of May 2017 (10:00-17:00)
Swerea SICOMP, **Linköping**, Sweden

Contact:
Mohamed Loukil,
Mohamed.Loukil@swerea.se
Phone: +46 (0)13 25 23 55