



Biofibre  
Materials Centre

## BiMaC (Biofibre Materials Centre)

### Propelling the future in Pulp, Paper, and Wood Technology Research at KTH

#### THE SECRETARIAT

The BiMaC administration is carried out by the same persons as the **FPIRC** (Forest Products Industry Research College; [www.fpirc.kth.se](http://www.fpirc.kth.se)) office:



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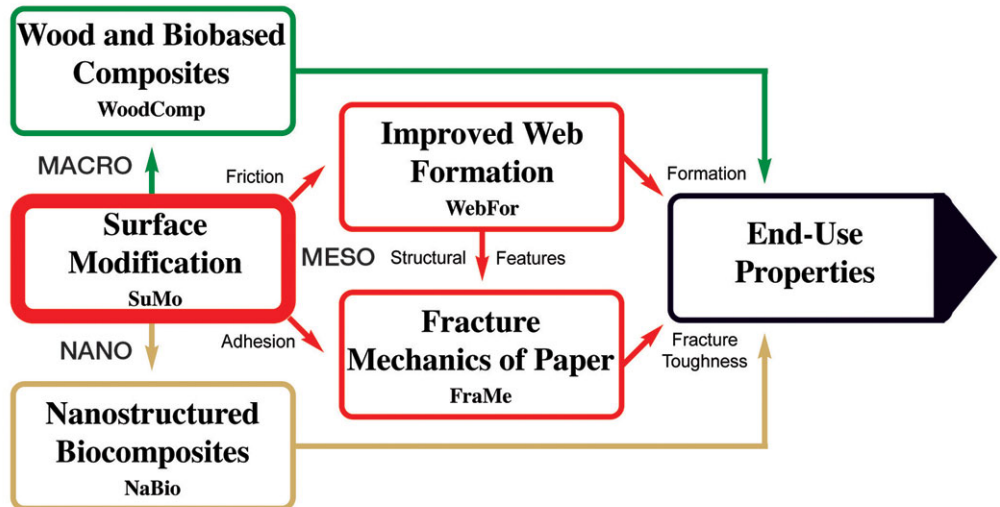


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BiMaC, a Materials Science Centre at KTH, started its activity in January 2002, based on an initiative from the *Swedish Forest Industries Federation* (Skogsindustrierna), and *KTH*. The primary aim is to renew the forest products research, which in this case encompass pulp and paper as well as wood and wood composites such as engineered wood composites and cellulose nano-composites. The focus is on long-term paradigm shifting research with a clear indus-

trial relevance. This research effort encompasses both generic and cross disciplinary research initiatives.

The research is conducted under the head of five different **platforms**, with strong links between the platforms in the form of **research lines** (see fig). At the moment, there are about 15 PhD-students, five postdocs, and ten professors directly involved in the whole effort.



#### Three Lines of Research and Five Platforms

The BiMaC research program is built on three **lines of research**, involving five different **platforms** in order to address different development needs:

- New and improved printing and packaging products for the pulp and paper industry (line of research: SuMo–WebFor–FraMe; red arrows in figure)
- New biocomposites for the wood mechanical industry (line of research: SuMo–WoodComp; green arrows)
- New high-performance nano-structured biocomposites and use of cellulosic nano-entities (line of research: SuMo–NaBio; yellow arrows)

SuMo is a central and common platform behind the other platforms, which are more directly linked to the end use of biofibre materials.

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With the formation of BiMaC, the role of KTH as the university hub of Biofibre Materials is being marked. This action is reinforced by the co-operation between BiMaC and the leading research institutes such as *STFI-Packforsk*, *SP Trätekt*, and *YKI*. The ambition is to develop BiMaC to an internationally leading centre for Biofibre Material Research.

**The Vision**

- To create a leading international materials science centre for wood based biofibre materials
- To revitalise forest industry research and create a new knowledge base to promote the use of biofibre materials
- To make the industry more competitive and more attractive as a field of study for research students

This Materials Science Vision recognises the need to enhance the physical properties of biofibre-based materials, to enable the development of new biomaterial products with the potential to conquer new markets. This demands a new knowledge base firmly rooted in the material sciences. Achieving this vision will require multi- and cross-disciplinary research, not only net-working between and within universities and

institutes, but also with the forest products industry cluster.

**The Mission**

- BiMaC shall extend the knowledge of the material properties of wood based biofibre materials (traditional forestry products and new biocomposites) by means of cross-disciplinary research. The connection between the production process, material structure and material properties will be of central importance
- BiMaC has the ambition to create conditions to enable radical breakthroughs in the field
- As the most important domestic raw material in Sweden, a large part of the research effort will be devoted towards extending the use of Scandinavian softwood, in combination with other materials. The potential use of fast growing tree species will also be investigated
- One research goal is that the conceived newly developed materials shall satisfy stringent environmental demands in terms of production, use and recycling

BiMaC shall strive for close collaboration network with industry, research institutes (especially *STFI-Packforsk* and *SP Trätekt*) and universities.

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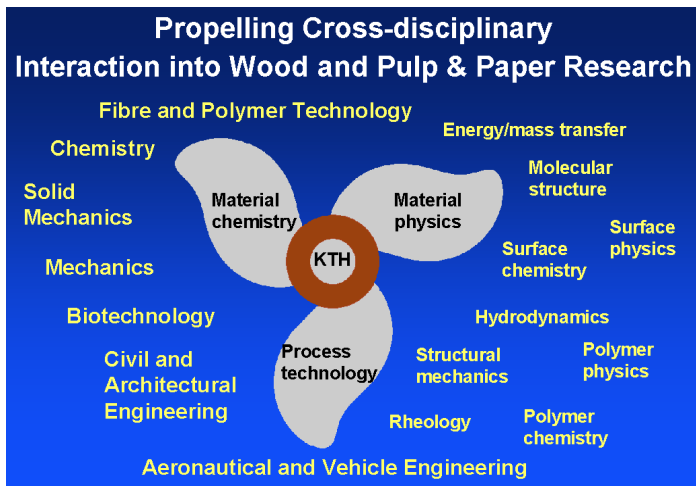
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**Research interactions**

*Cross-disciplinary research interactions between generic departments will propel the necessary elements; Material Chemistry, Material Physics and Process Technology, for a Materials Science Vision for Wood Based Biofibre Materials*