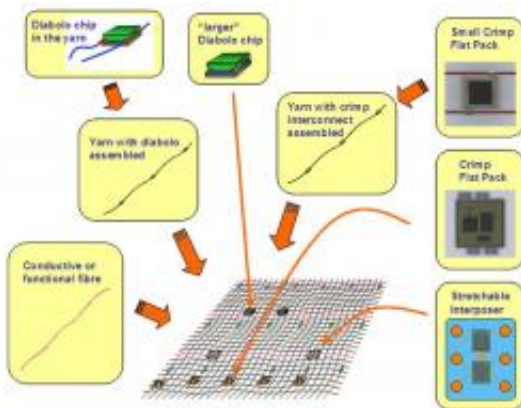


# Bringing smart textile to industrial manufacturing level

November 3 2010



Caption: PASTA Integration concept

Imec and its project partners announce the launch of the European FP7 (Framework Program) project PASTA (Integrating Platform for Advanced Smart textile Applications) aiming at developing large-area smart textiles. Large-area manufacturability is an essential aspect in bridging the gap between lab prototyping and the industrial manufacturing of smart textiles for sports and leisure wear, technical textiles for safety and monitoring applications, and textiles for healthcare monitoring purposes.

The PASTA project will combine research on electronic packaging and interconnection technology with textile research to realize an innovative approach of smart textile. By introducing new concepts for electronic

packaging and module interconnect, a seamless, more comfortable and more robust integration of electronics in textile will be possible. The main technological developments will concentrate on a new concept for bare die integration into a yarn (by means of micromachining), a new interconnect technology based on mechanical crimping, and the development of a stretchable interposer serving as a stress relief interface between the rigid component and the elastic fabric. The technologies will also be assessed in a functional evaluation and reliability testing program. The proposed solutions for integration of electronics in textile will cover a whole range of components, from ultra-small LEDs to complex multichip modules. Moreover, a system design task will tackle the power distribution and system partitioning aspects to provide a complete solution for integration of a distributed sensor/actuator system in fabric.

Four applications areas will be addressed by the project. For outdoor sports and leisure wear, luminous textile with integrated [photovoltaic cells](#) will be developed. Moreover, washability will be addressed, as this is an essential aspect of intelligent clothes. PASTA will also explore a bed linen application with an integrated sensor to monitor humidity and signal excessive humidity due to bed-wetting. Two home-textile safety applications will be addressed by integration of building evacuation markings using LEDs. And last, a fabric will be developed which allows non-destructive in-situ monitoring of accumulated stress in composites to predict the residual life-time and to indicate damage of industrial components.

PASTA is a 4 years project, coordinated by imec, and will build on the results of the very successful STELLA project (FP6) and the extensive textile know-how in the consortium. Industrial as well as academic players will bring their expertise to the project: project partners are imec (Belgium), CEA (Commissariat à l'Énergie Atomique et aux Énergies Alternatives), PEP (Association Pôle Européen de Plasturgie), Sport

Soie SAS (France), Fraunhofer IZM, STFI (Sächsisches Textilforschungsinstitut), ETTLIN Spinnerei und Weberei Produktions GmbH & Co KG, Peppermint Holding GmbH (Germany) and CSEM - Centre Suisse d'Electronique et de Microtechnique (Switzerland).

Provided by IMEC

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