Hes·so
Haute Ecole Spécialisée de Suisse occidentale
Fachhochschule Westschweiz
University of Applied Sciences Western Switzerland

Projet FP7 – PARYLENS

Nom du projet	PARYLENE based artificial smart LENSes fabricated using a novel solid-on-liquid deposition process - PARYLENS
Call	NMP-2009-1.1-1
Type de projet	Small or medium-scale focused research project
Rôle de la HES-SO	Coordinateur
Chercheur impliqué	Herbert Keppner (HE-ARC Ingénierie)
Participants	Haute Ecole Spécialisée de Suisse occidentale (Switzerland) – Coordinateur ; Consiglio nazionale delle ricerche (Italy) ; AJL Ohpthalmic s.a. (Spain) ; Varioptic sa (France) ; Comelec sa (Switzerland) ; Fraunhofer-Gesellschaft zur Foerderung der angewandten forschung e.v (Germany) ; SCIPROM sarl (Switzerland) ; Cedrat Technologies sa (France) ; Politechnika Gdanska. (Poland); Interuniversitair Micro-Electronica Centrum vzw (Belgium); Fundacion CIDETEC (Spain); Bar Ilan University (Israel).
Budget global	5 millions euro / financement UE : 3.84 millions euro
Durée	36 mois, début le 1.10.2010
Résumé	The main goal of the project PARYLENS is to develop the next generation optical devices, based on an innovative and reliable concept inspired by natural optical systems such as the human and the fly eyes. We propose the following devices to the European citizen and industry: 1) tuneable lenses 2) truly accommodative intraocular lenses 3) bistable flexible displays The development of those devices relies on recent advances in nanotechnology combined with the patented SOLID (Solid On Liquid deposition) process, which offers the possibility to grow a stable solid layer directly onto a liquid, such that the solid uniformly replicates and encapsulates the liquid template. When using the polymer Parylene as solid layer, the resulting interface is perfectly smooth and the liquid template remains unaffected, which is ideal for optical applications. Parylene is stable, biocompatible, highly transparent, and can be deposited in a one-step process also on liquids. PARYLENS proposes to develop low cost yet high quality, reliable smart devices. The actuation of the tuneable lenses will rely on Parylene-based electroactive polymers and liquid crystals. Tuneable lenses are expected to have an impact on the consumer electronics market (mobile phones, cameras, etc) in addition, the development of low actuation voltages tuneable lenses will profit to the

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biomedical devices market (artificial eyes, endoscopes, etc). The truly accommodative intraocular lenses will closely mimic the structure and shape of the crystalline lens of the human eye. They will also prevent inflammation and infections. The structure of microlens arrays will be used to develop flexible bistable liquid crystals displays.

The consortium is well balanced (12 partners from 8 countries) and goes for full complementarity. It comprises 4 SMEs, 3 universities and 4 research centres. Together they will make this ambitious multidisciplinary project a reality.

Lien http://www.parlyens.eu