

### PROJECT BACKGROUND AND PURPOSE

Windows are critical elements to control the energy performance of buildings especially for zero-energy buildings. It is of paramount importance to develop windows which show reduced U-value, weight and costs and certain features to control and harvest energy.

Therefore,

(1) MEM4WIN will introduce a novel IG-Unit for quadruple glazing containing ultra thin glass membranes dedicated as frameless openable windows for direct application in facades. Due to this approach U-values of  $0.3 \text{ W/m}^2\text{K}$  can be achieved reducing weight by more than 50% and costs by 20%.

(2) MEM4WIN will implement ink-jet printed organic photovoltaics (OPVs), fully integrated solar thermal collectors for energy harvesting, integration of organic light emitting diodes (OLEDs) for artificial lighting as well as micro mirrors for energy and day lighting control.

(3) Fabrication costs will further be reduced by replacing conventional and cost intensive materials used for contacts like ITO and silver by graphene and by implementing novel high-throughput production methods e.g. for anti-reflective coatings, encapsulation of moisture sensitive films and sealing of the IG-unit.

(4) At the end of the project the aforementioned modular components like micro mirror arrays, OPVs, solar thermal collector as well as OLEDs will be integrated into a fully functional demonstrator showing the suitability of the used equipment, processes and new materials developed.



### PROJECT CONSORTIUM

The 'window of the future', which will include all of the above functions, will be developed as part of the EU funded project 'MEM4WIN'. The Austrian industrial company LiSEC – global leader in glass processing machines and a pioneer in the production of insulating glass – is coordinating the international research project.

The Austrian research company PROFACTOR, five universities and six additional industry partners are partner within the project consortium. The project, which began on 1 October 2012 has a run time of 42 months (project close: March 2016).

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Project website: [www.mem4win.org](http://www.mem4win.org)

