

## Stuttgart SmartShell

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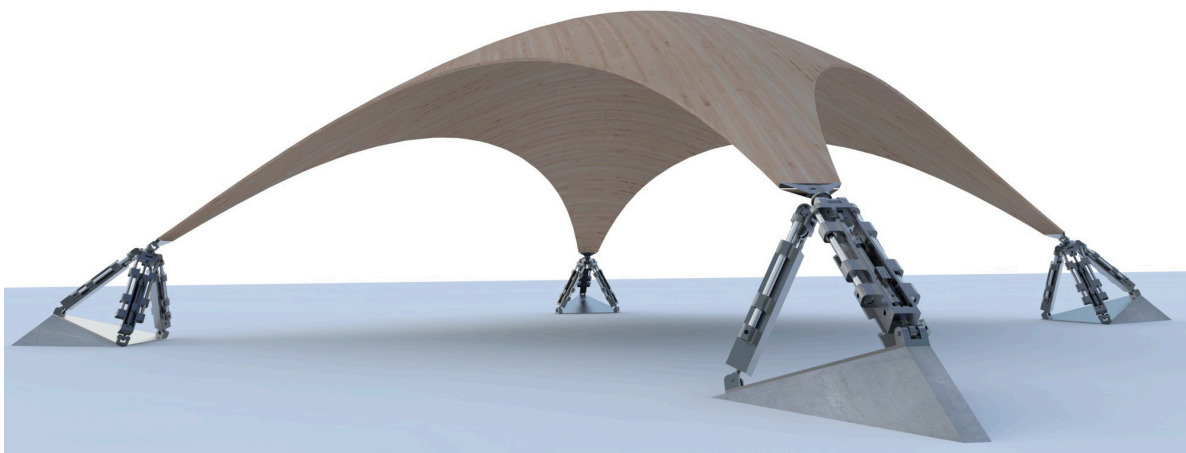


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### Architectural revolution with hydraulic drive

The world's first adaptive shell structure is currently being built at the University of Stuttgart's campus in Vaihingen. The opening ceremony of the prototype on April 16 will see the beginning of the validation phase of previous simulation results. Researchers of the Institute for System Dynamics (ISYS) and the Institute of Lightweight Structures and Conceptual Design (ILEK) have joined forces on this unique project. Together with the drive and control specialist Bosch Rexroth, the researchers are venturing into the unknown with a revolutionary step by constructing a shell structure spanning 10 m x 10 m to a scale of 1:1. The goal is for hydraulic drives manufactured by Rexroth to produce movements at the support points in order to specifically reduce loads and deformations caused by externally applied loads. In addition, vibrations of the system can actively be damped.

Professor Oliver Sawodny and Professor Werner Sobek from the participating institutes at the University of Stuttgart explain: "This active construction technology enables us to build ultra-lightweight structures that significantly reduce the use of resources in comparison to conventional passive structures."



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**Project Participants**

Institute for Lightweight Structures and Conceptual Design (ILEK), Universität Stuttgart  
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