## **COMSOL** CONFERENCE 2016 MUNICH Jens Richter, Thomas Hilbig, Christian Schröder University of Applied Sciences Bielefeld Department of Engineering Sciences and Mathematics, Bielefeld, Germany

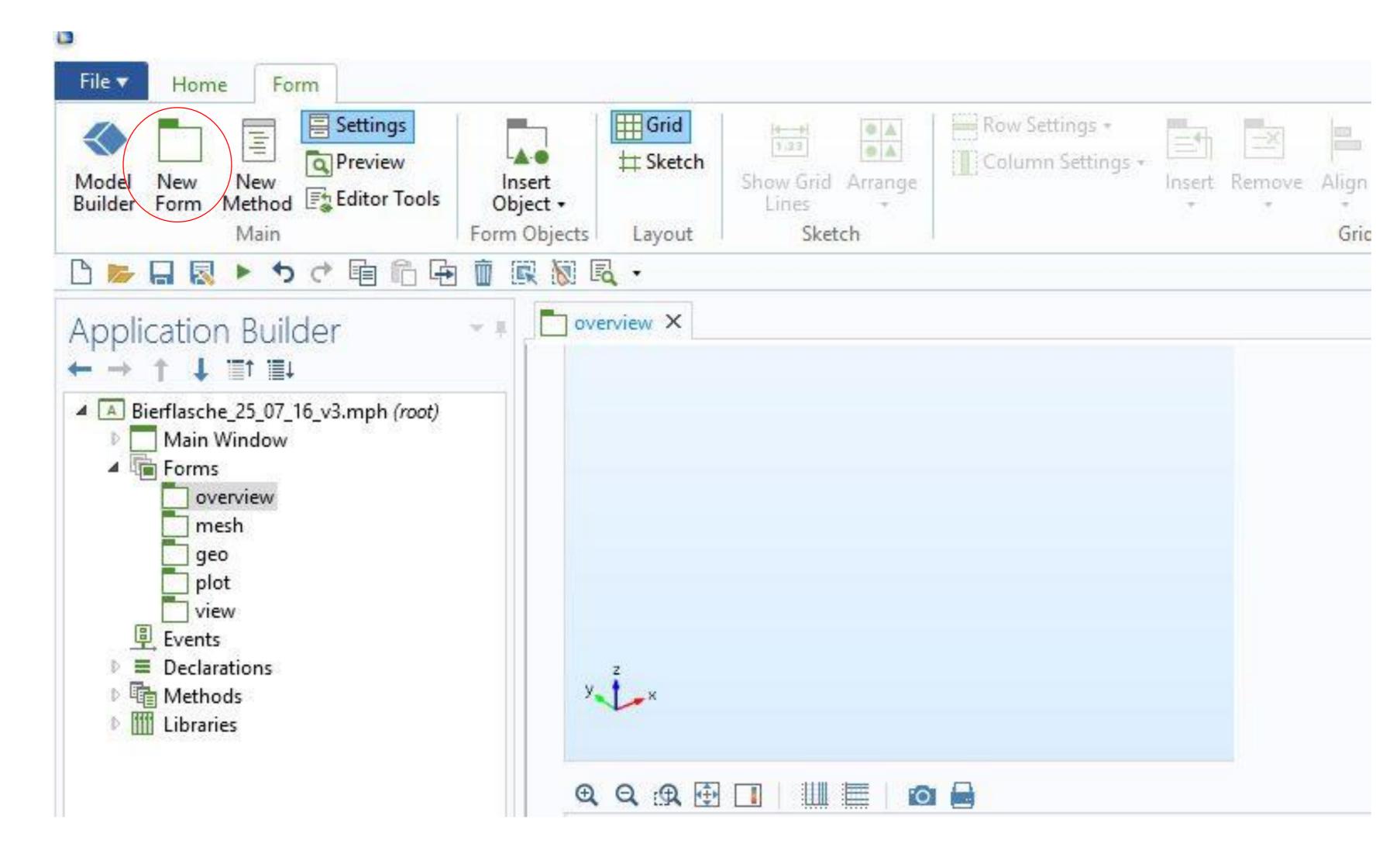
**Introduction**: The scope of this project was the creation of a short and comprehensive tutorial for the use of COMSOL's Application Builder for students at the University of Applied Sciences Bielefeld. The tutorial is based on the everyday life "problem" how to cool a beer bottle most efficiently. It shows how to use the most important features and tools (e.g. creating buttons, input fields, methods, generating diagrams, etc.) of the Application Builder in order to create quickly a fully functioning COMSOL App.

## Some selected screen shots from the tutorial:

A Application Builder	<ul> <li>Model Data Access</li> <li>Record a New Method</li> <li>Test Application</li> <li>Application</li> </ul>	Component Add 1 (comp1) • Component • Model	Pi Parameters a= Variables • f(x) Functions • Definitions		Build All	LiveLin	
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**Figure 1**. Switch from the Model Builder to the Application Builder

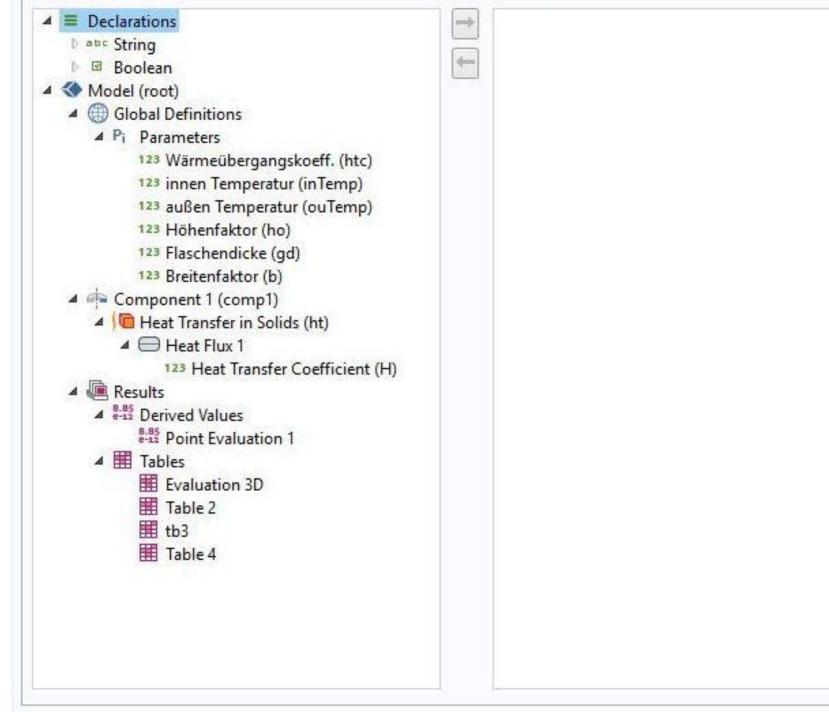
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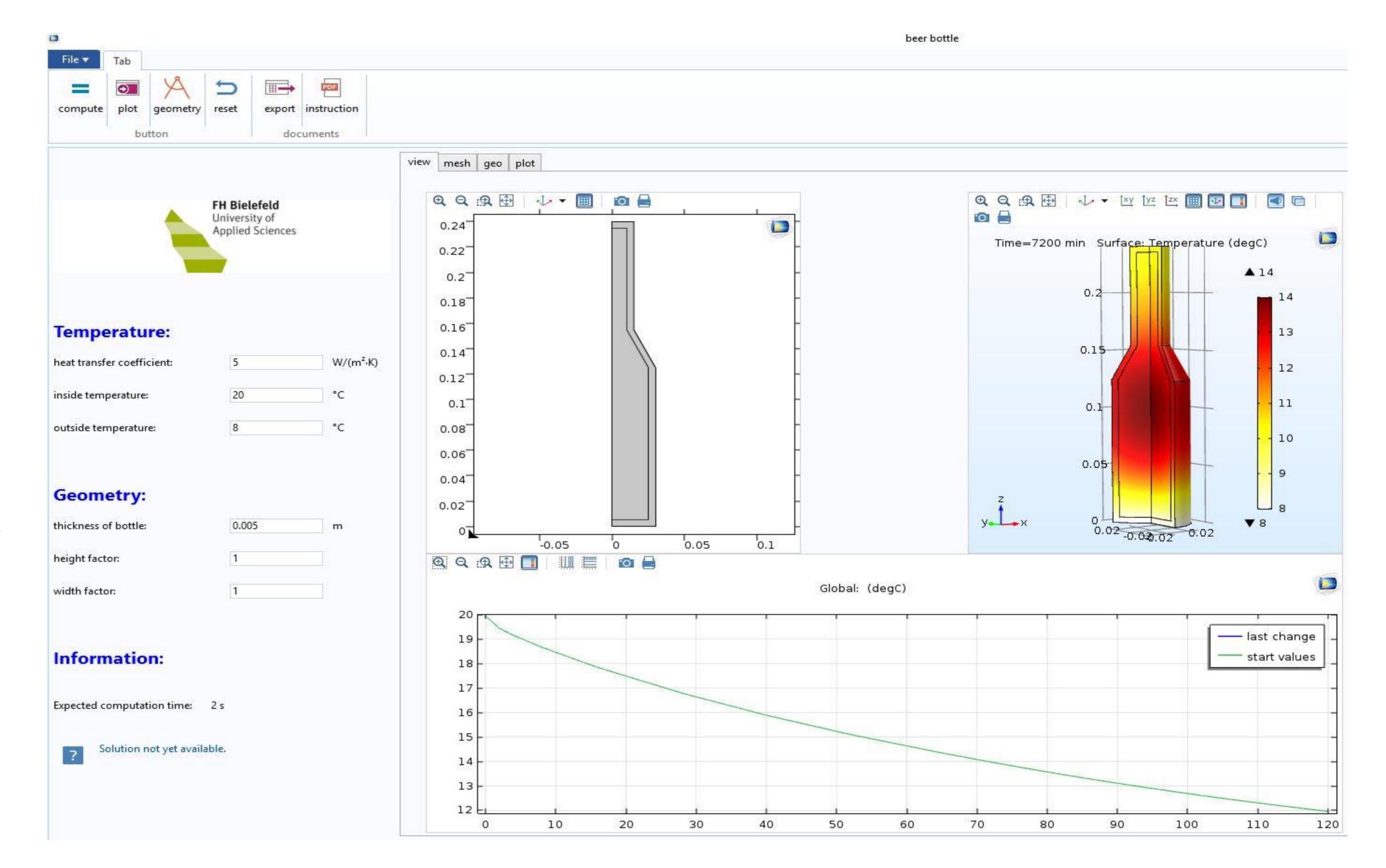
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**Figure 3**. Select the desired Inputs/Outputs, Graphics and Buttons

## Figure 2. Create a new form



**Figure 4**. The way how to create the complete application ("beer bottle") is explained on just 13 pages within the tutorial.

**Conclusions**: Our tutorial enables students without experiences in simulation methods to quickly create their own COMSOL App during practical lab courses. Furthermore, the "beer bottle App" allows them to study basic thermodynamics and heat transfer effects with the help of an everyday life example.

Excerpt from the Proceedings of the 2016 COMSOL Conference in Munich