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| <input type="checkbox"/> Bachelor thesis | <input checked="" type="checkbox"/> theoretical |
| <input type="checkbox"/> Construction exercise | <input type="checkbox"/> experimental |
| <input checked="" type="checkbox"/> Master thesis | <input type="checkbox"/> constructive |
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Topic: Influence of the carbon support on the performance of catalysts for the alkaline direct ethanol fuel cell

Alkaline direct ethanol fuel cells (ADEFCs) have gained much attention in recent decades due to their use of alternative energy sources. They are characterized by low toxicity, low cost, environmental friendliness and robustness.

There are several challenges to overcome in the development of fuel cells: performance (activity), durability (stability) and cost. Moreover, incomplete ethanol oxidation reaction (EOR) at the anode and ethanol crossover from the anode to the cathode are major issues. Therefore, catalyst and membrane development are the challenges that need to be addressed to enhance the performance, durability and cost of the ADEFC. In this project, the influence of different carbon support materials on the catalytic activity and long-term stability of the catalysts on the cathode and anode side will be theoretically studied.

The **theoretical work** includes:

- Description of the different **carbon supports**
- Explanation of **principle of support materials**
- Comparison of the DEFC **anode** and **cathode catalysts** and the **different supports**
- Influence of carbon supports on the **performance** and **activity**

Contact: **Dipl.-Ing. Michaela Roschger**, Tel.: +43 (316) 873 - 8788

E-mail: michaela.roschger@tugraz.at

Prof. Viktor Hacker, Tel.: +43 (316) 873 - 8780

E-mail: viktor.hacker@tugraz.at

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