

## Abschlussarbeit Bachelor/Master:

### Synthesis and characterization of high temperature CO<sub>2</sub> selective dual-phase ceramic membranes

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Sprache: English

Carbon dioxide emissions are a major environmental concern in our society. Recently, high temperature separation has been suggested to minimize the emissions in coal burning power plants. In this project, the student will be involved in the preparation, characterization and testing of dual-phase membranes.

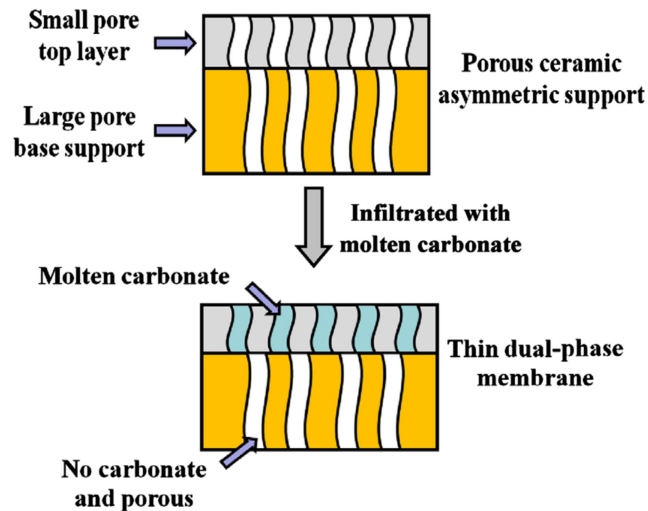


Figure 1. Schematic of the dual-phase membranes [B. Lu, Y.S. Lin/Journal of Membrane Science 444 (2013) 402–411]

#### Methods:

The synthesis methods include preparation of solid-liquid mixtures using ceramic powders and appropriate solvents. After calcination, disks are prepared by uniaxial pressing. Dip-coating and spin-coating will be used for thin layer deposition. In order to characterize the resulting membranes, SEM-EDX, XRD and mercury porosimetry will be applied. High temperature permeation tests will be done in our institute.

**Arbeitsinhalte/work contents** ceramic processing (slurry preparation, sintering) // layer deposition (dip coating, spin coating) // characterization (SEM/EDX, XRD, mercury porosimetry, permeation testing)