Institut für Werkstoffanwendungen im Maschinenbau | RWTH AACHEN UNIVERSITY

Bachelor/Mini Thesis

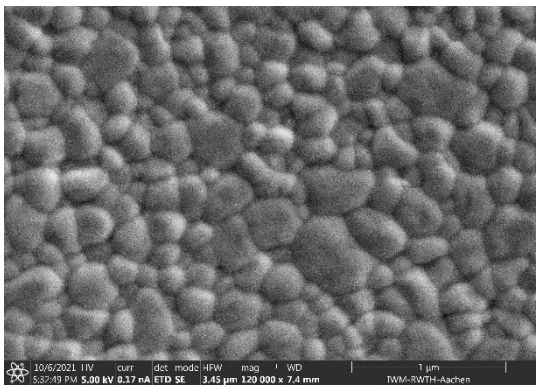
Influence of sintering atmosphere on the grain growth on ZrO_2

Project Description

The engineering properties of ceramics are strongly dependent on the microstructure, the important features of which are the size and shape of the grains, the amount of porosity, the pore size distribution and etc. The densification of a polycrystalline powder compact is usually accompanied by coarsening of the microstructure: both the grains and pores increase in average size while decreasing in number. Since the grain size influences the densification process and subsequently the mechanical properties of ceramics, the grain growth phenomenon has to be investigated. In addition, the sintering atmosphere may play an important role on the grain growth and needs to be studied as well.

Tasks

- Measurement of average grain size of ZrO_2 at different sintering temperatures and holding time.
- Determination of grain growth exponent in air and at 80% Ar/20% H_2.
- Comparison of grain growth at different atmosphere.



Requirements

- Interest in experiments and data analysis.
- Self-initiative and independent work

We offer

A comprehensive training and friendly work environment. A speedy conclusion of the work is desirable and supported with proper guidance from our side. The work may start immediately.

Contact

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Note: Hiwi position can be possible depending on the student's performance.