FRIEDRICH-ALEXANDER UNIVERSITÄT ERLANGEN-NÜRNBERG
TECHNISCHE FAKULTÄT

WW3

Arbeitsgruppe /Group	Glass
Betreuer/ Supervisor	Prof. Dr. Dominique de Ligny
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Sprache / Language	English
Art / Type	Bachelorarbeit
Dauer / Duration	BA-Arbeit 360 h in 5 Monaten

Thema / Topic

Glasses memory a promising way to track glass processing

Einleitung / Introduction

The glass structure not only depends on its chemical composition but also on the way glass was prepared. Especially the cooling velocity around the glass transition is essential. We propose to follow the Pressure and Temperature using pressure and temperature recording ability of borosilicate glasses.
Better understanding of a large variety of process can be then expected as glass fiber drawing, Spark Plasma Sintering or laser writing and cutting.

Durchzuführende Arbeiten/Deliverables

Different sample sets will be prepared with changing synthesis conditions. They will be characterized using X Ray diffraction, FTIR and Raman spectroscopy. Some measurements will be realized in situ at high temperature. Correlation between structural laws and synthesis parameters will be then determined and then used to better understand samples with unknown thermal and pressure history.

Literatur / Literature

Bressel L., D. de Ligny, C. Sonneville, V. Martinez, V. Mizeikis, .R. Buividas, and S. Juodkazis (2011) Femtosecond laser induced density changes in GeO2 and SiO2 glasses: fictive temperature effect. Optical Materials Express, Vol. 1, 605-613.
Angeli F, O. Villain, S. Schuller, T. Charpentier, D. de Ligny, L. Bressel and L. Wondraczek (2012) Effect of temperature and thermal history on borosilicate glass structure. Physical Review B 85, 054110.

Beginn / Start March-April 2016