

# Curriculum vitae Petra Dral

September 2017

## Personalia

Date and place of birth: 31 January 1990, Utrecht

Nationality: Dutch

## Education and professional experience

- 2014-present      PhD student/researcher  
**MESA+ Institute for Nanotechnology, University of Twente, Enschede**  
Designing and executing materials research, writing scientific publications, visiting international conferences, supervising students, leading plenary discussions on general topics (e.g. ethics of technology, public policy)
- PhD thesis:      Water sensitivity and microporosity in organosilica glasses  
*(defense 1-12-'17)*      *(related topics: organosilica, inorganic polymerization, structural analysis, microporosity, network relaxation, membranes, coating formulations, hydrothermal stability)*
- Side project:      2D metal oxides for sensor applications  
*(related topics: sensing mechanisms, semiconductor electronics, molecular recognition, synthesis methods, hierarchical structures)*
- 2007-2013      **Chemical Engineering, University of Twente, Enschede**
- 2011-2013      Master:      Chemical Engineering *(cum laude)*  
Track:      Molecules & Materials
- Internship:      **Thermosets, DSM Ahead B.V., Geleen**  
The application of virus-like particles in functional coatings  
*(related topics: virus capsids, supramolecular chemistry, protein purification, silica formation, optical coatings)*
- Graduation:      **Inorganic Materials Science, University of Twente, Enschede**  
The application of nanosheets as a seed layer for oriented film growth and film transfer  
*(related topics: nanosheets, layered clay-like materials, epitaxial film growth, pulsed laser deposition, transfer methods, flexible electronics)*
- 2007-2011      Bachelor:      Chemical Engineering  
Minor:      **Reformed theology, Theological University of Apeldoorn, Apeldoorn**

## Scientific publications

6. Dral, A.P., Elshof, J.E. ten. Analyzing microporosity with vapor thermogravimetry and gas pycnometry. *Microporous and Mesoporous Materials* 258 (2018) 197-204.

5. Dral, A.P., Lievens, C., Elshof, J.E. ten. Influence of monomer connectivity, network flexibility, and hydrophobicity on the hydrothermal stability of organosilicas. *Langmuir* 33 (2017) 5527-5536.
4. Dral, A.P., Tempelman, K., Kappert, E.J., Winnubst, A.J.A., Benes, N.E., Elshof, J.E. ten. Long-term flexibility-based structural evolution and condensation in microporous organosilica membranes for gas separation. *Journal of Materials Chemistry A* 5 (2017) 1268-1281.
3. Elshof, J.E. ten, Dral, A.P. Structure-property tuning in hydrothermally stable sol-gel-processed hybrid organosilica molecular sieving membranes. *Journal of Sol-Gel Science and Technology* 79 (2016) 279-294.
2. Dral, A.P., Nijland, M., Koster, G., Elshof, J.E. ten. Film transfer enabled by nanosheet seed layers on arbitrary sacrificial substrates. *APL Materials* 3 (2015) 056102.
1. Dral, A.P., Dubbink, D., Nijland, M., Elshof, J.E. ten, Rijnders, G., Koster, G. Atomically defined templates for epitaxial growth of complex oxide thin films. *Journal of Visualized Experiments* 94 (2014) e52209.

## Conference orals

Dral, A.P., Tempelman, K., Kappert, E.J., Winnubst, A.J.A., Benes, N.E., Elshof, J.E. ten. Long-term flexibility-based structural and chemical evolution in microporous organosilica membranes: a problem and solution. 2017 MRS Spring Meeting, Phoenix, Arizona, 17-21 Apr 2017.

Dral, A.P., Kappert, E.J., Tempelman, K., Wenderich, K., Mul, G., Winnubst, A.J.A., Benes, N.E., Elshof, J.E. ten. Studies on ongoing structural changes in hybrid glassy and ceramic materials during prolonged thermal treatment. 14<sup>th</sup> International Conference European Ceramic Society, Toledo, Spain, 21-25 Jun 2015.

Dral, A.P., Kappert, E.J., Tempelman, K., Winnubst, A.J.A., Benes, N.E., Elshof, J.E. ten. Structural and hydrothermal stability of organosilica membranes. ADEM Conference, Scheveningen, The Netherlands, 21-22 May 2015.

Dral, A.P., Nijland, M., Blank, D.H.A., Rijnders, A.J.H.M., Elshof, J.E. ten, Koster, G. The application of nanosheets as a seed layer for oriented film growth and film transfer. NWO CW Study group meeting, Veldhoven, The Netherlands, 10-11 Feb 2014.

## Secondary activities and personal interests

2011-2012      Volunteer **Diaconate of the Immanuël Church in Enschede**  
Supporting in policymaking and contemplation

summer 2011    Volunteer **Hospice Enschede**  
Providing easy physical care and doing household work

2009-2010      Board member **Student association VGST**  
Setting up and directing commissions, minuting general meetings, working out policies, supporting in general activities (25h/wk)

Personal interests: e.g. making pottery, travelling, listening to music, reading, watching talent show clips