

28.09.2017

DIRECT INSIGHT INTO THE ADMIXTURE ACTIVITY DURING CEMENT HYDRATION USING LEVITATED DROPLETS

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burnt lime



East-Turkey
120 BC

**opus
caementitium**



Phoenician
10 BC



Rome
ab 3 BC



North Europe
19 c.

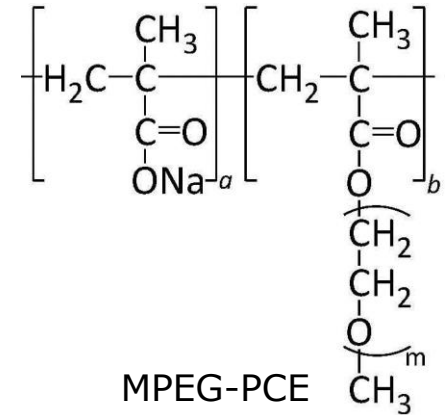
Portland cement



21 c.

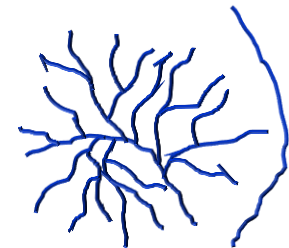
Admixtures

Superplasticizer (SP)

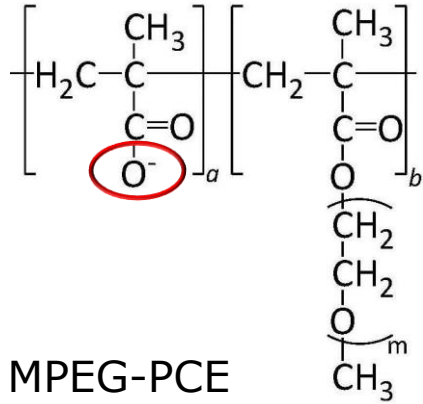
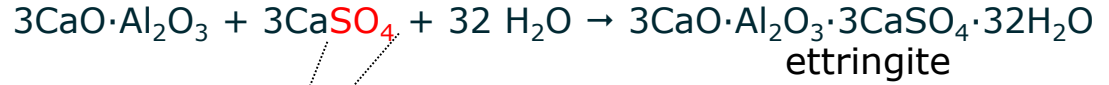


Stabiliser (ST)

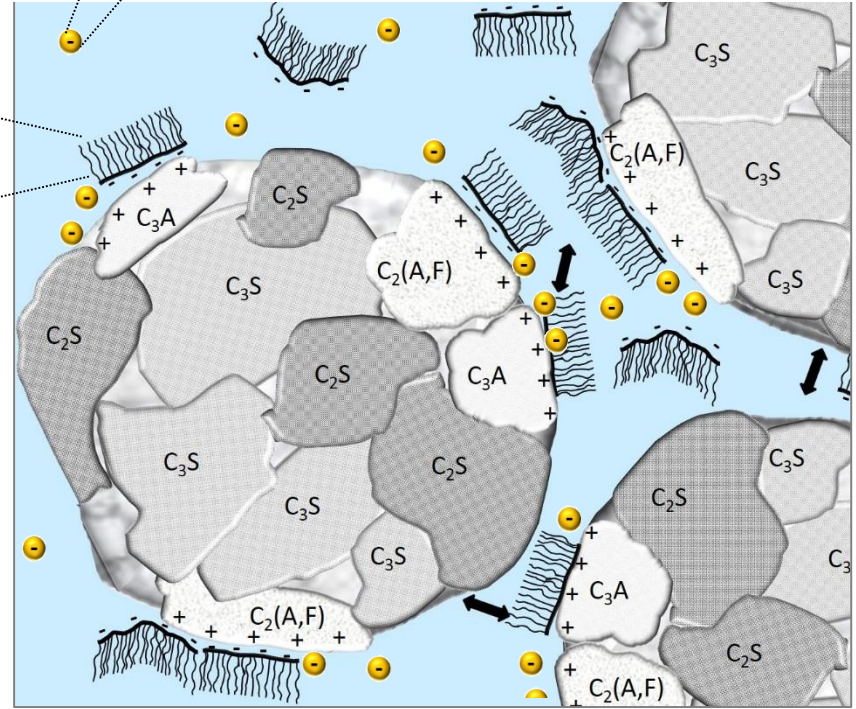
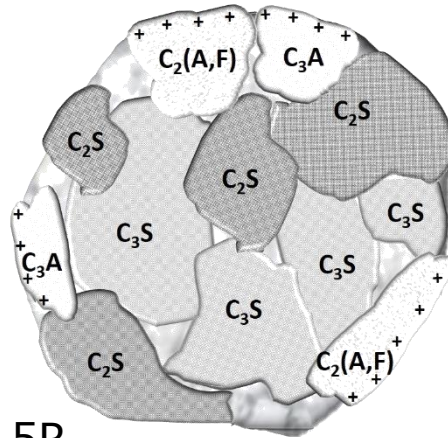
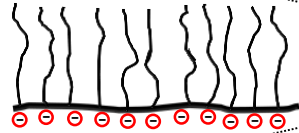
starch



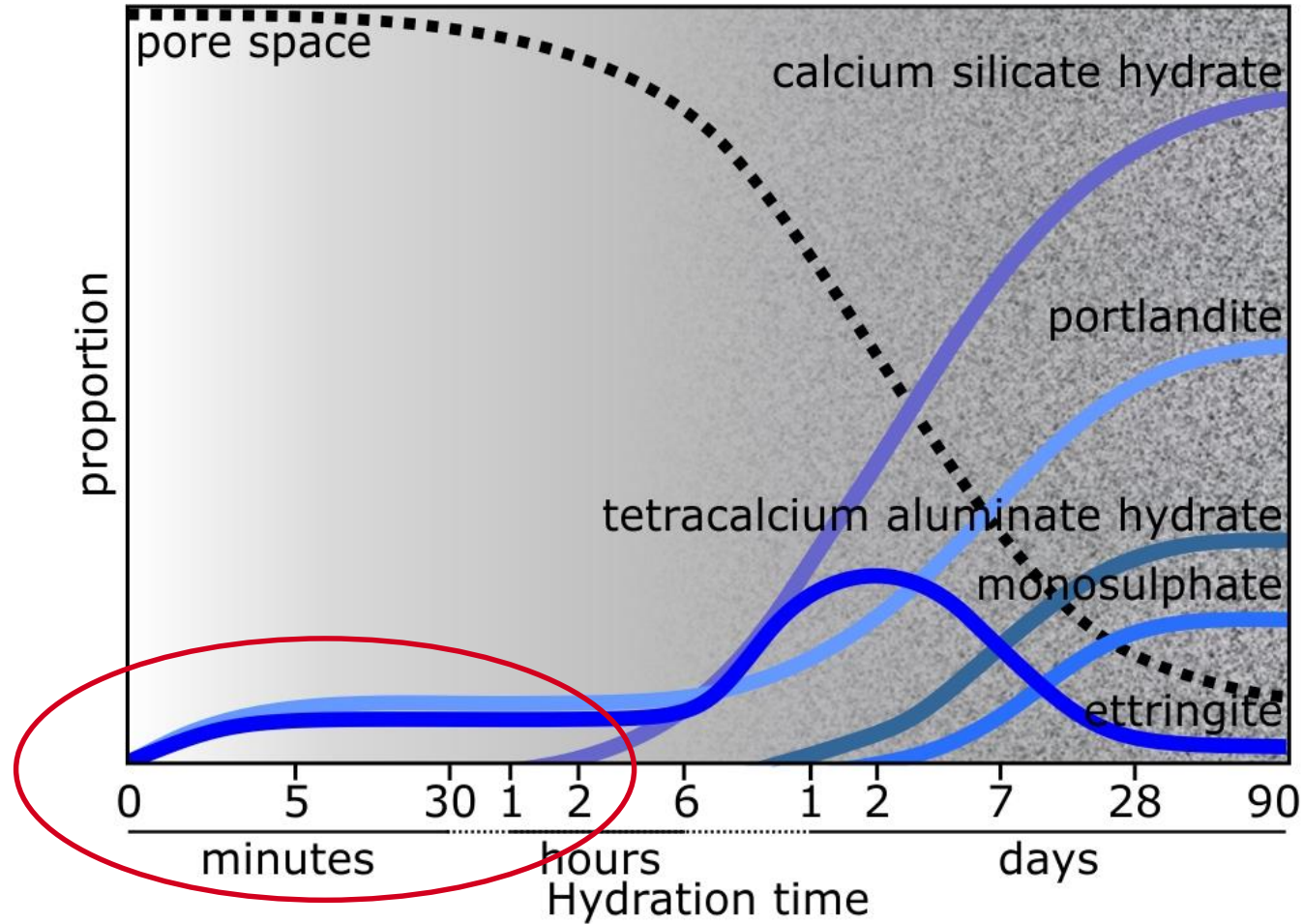
Öresund bridge, Kopenhagen - Malmö, 2000

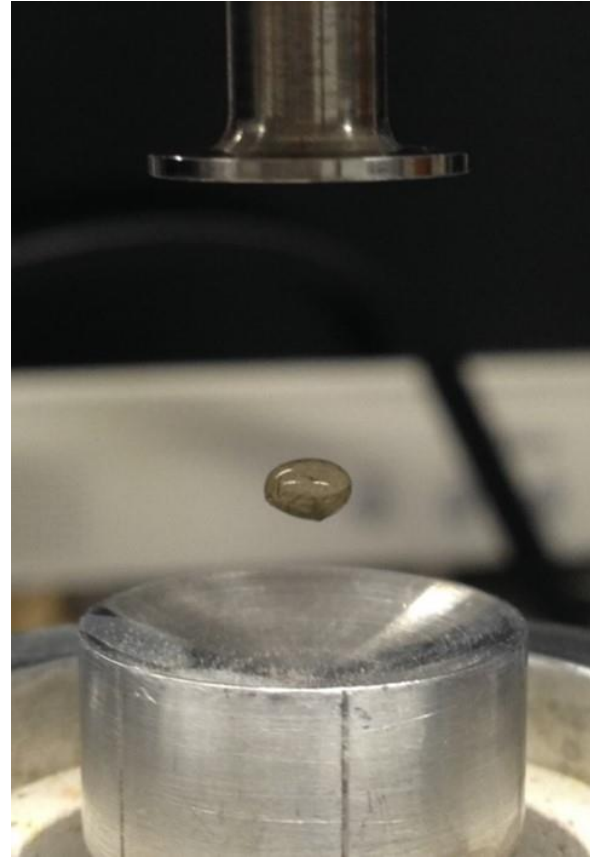
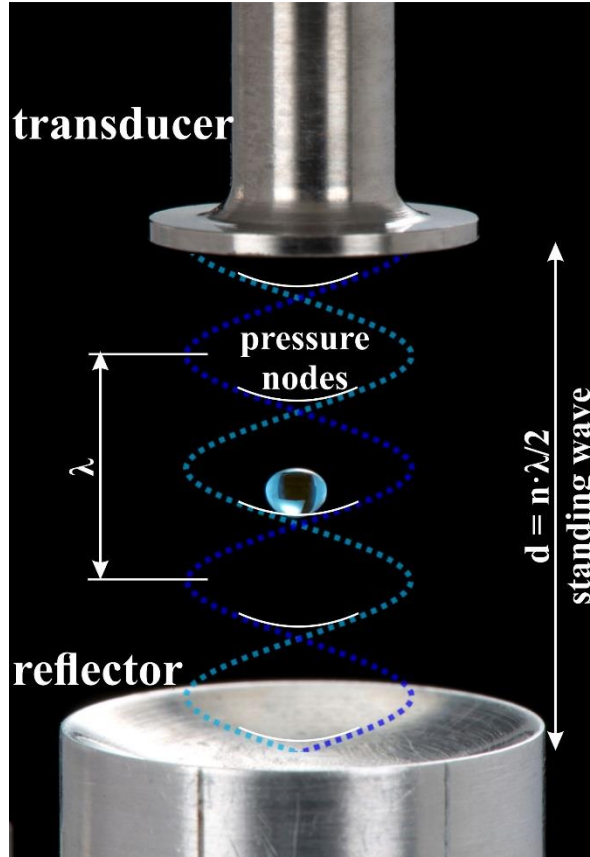


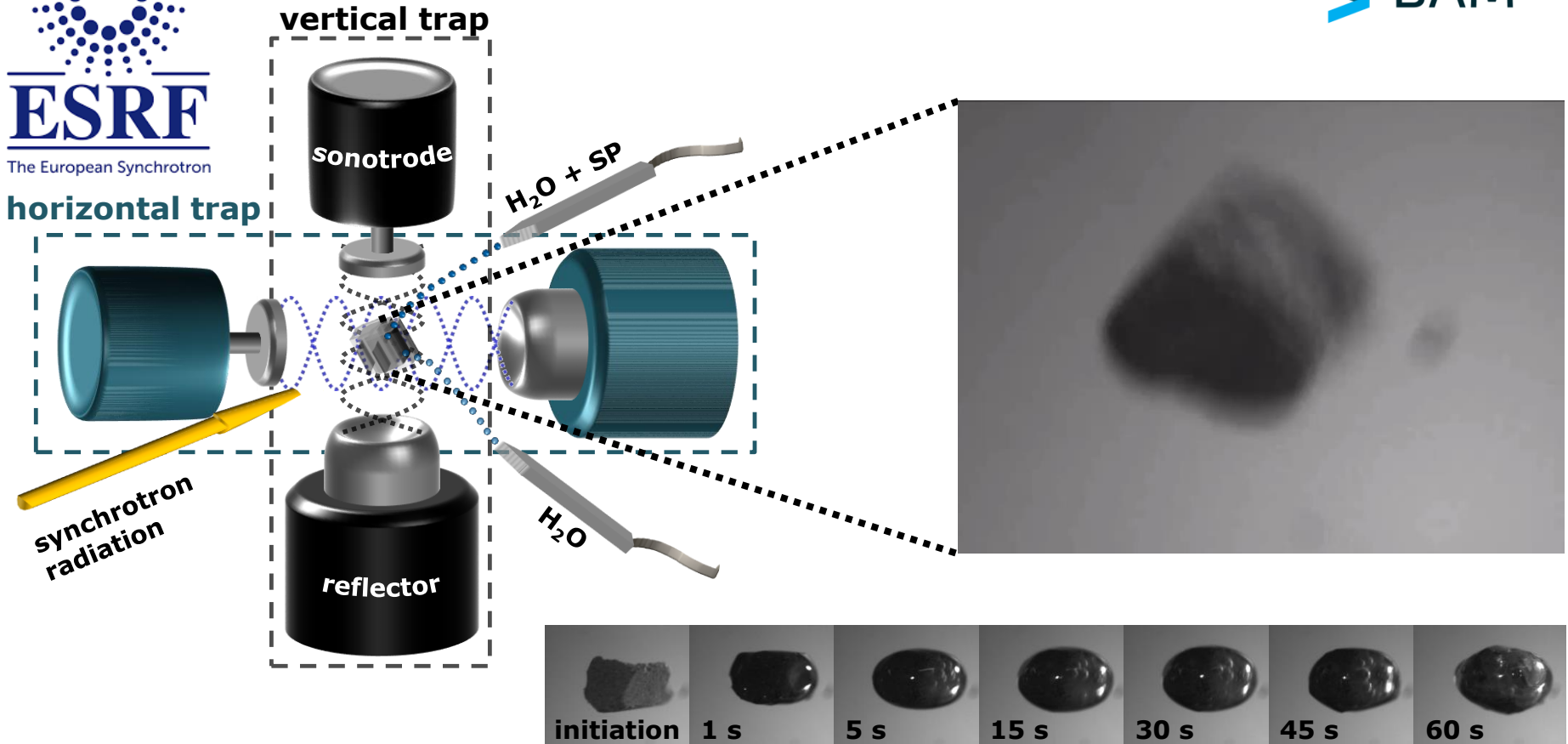
SP

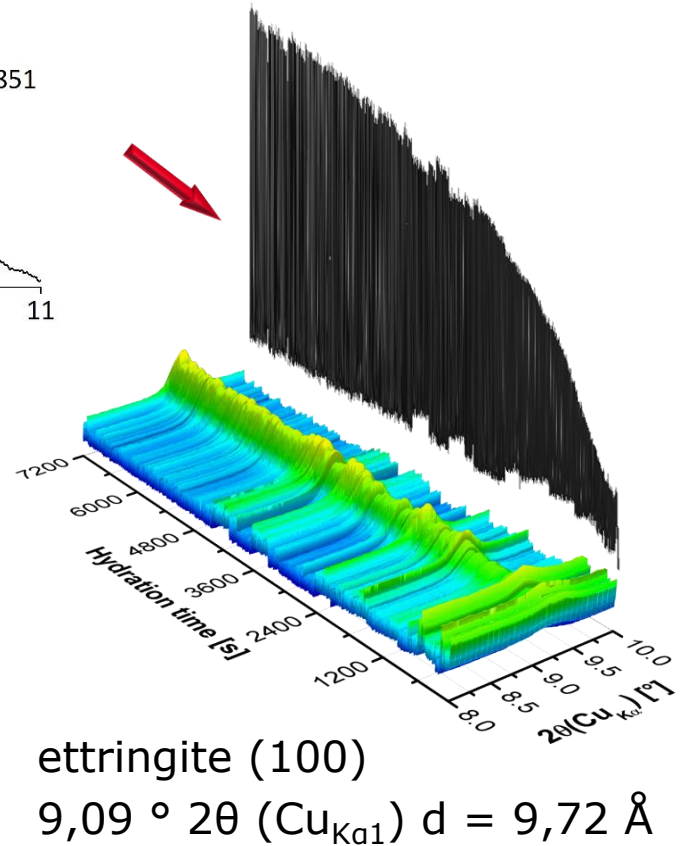
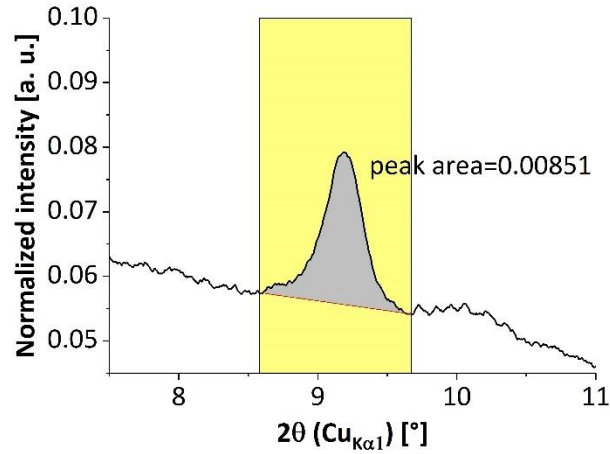
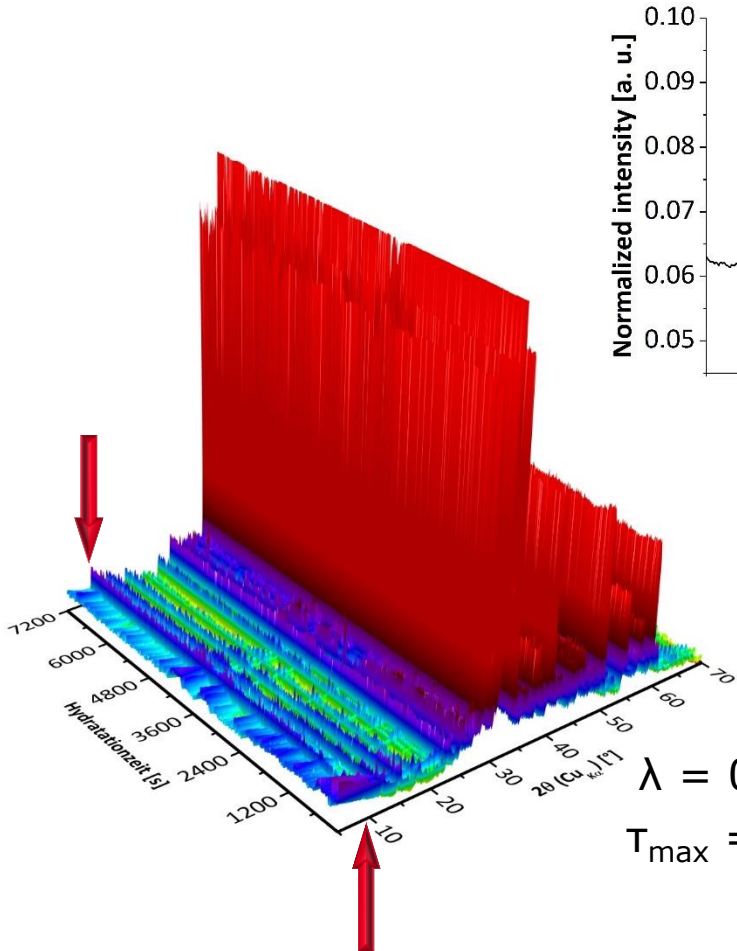


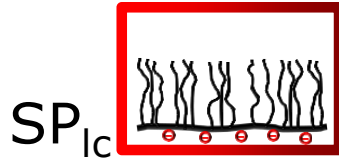
CEM I 42.5R



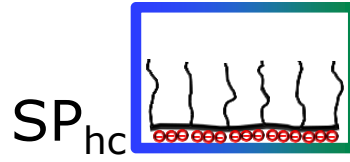








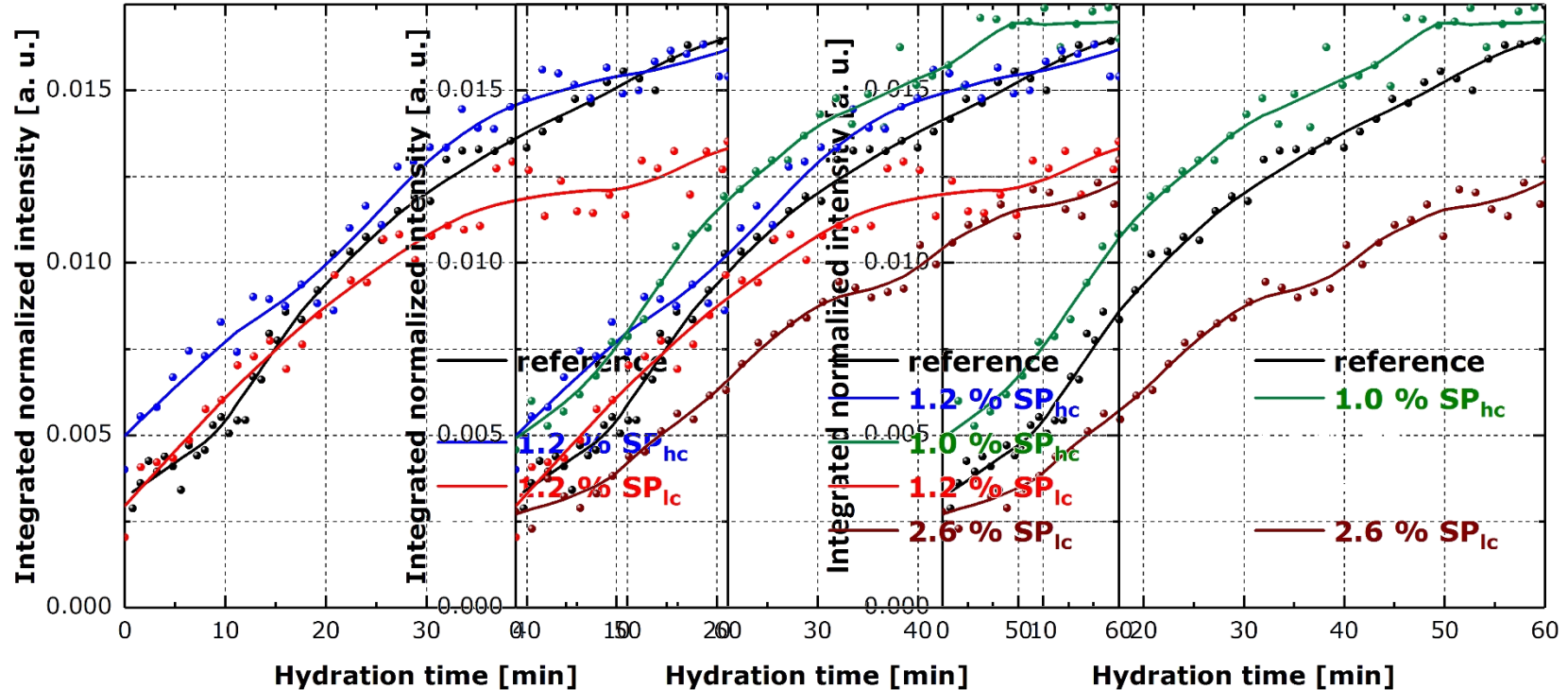
SP_{lc}

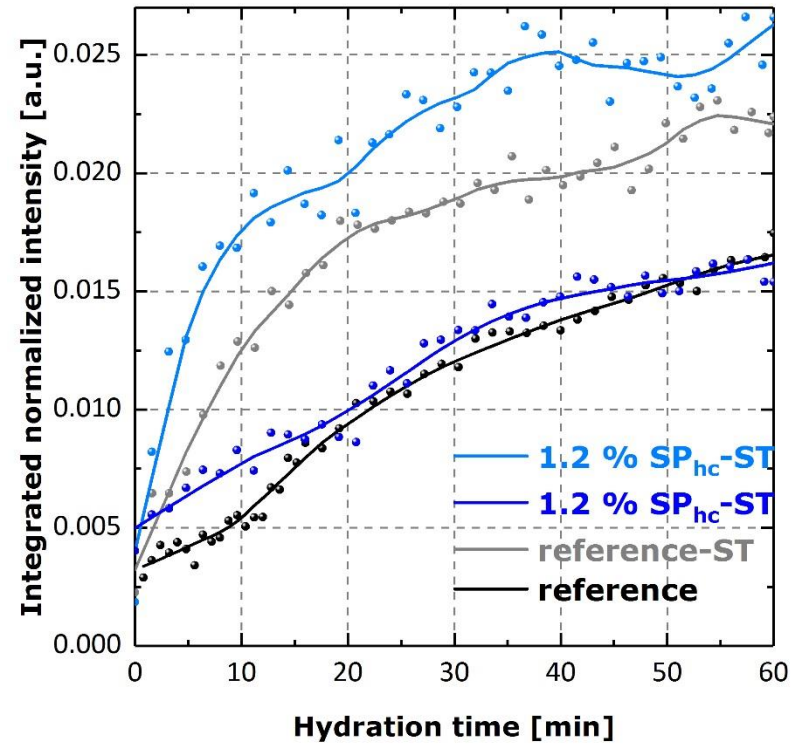
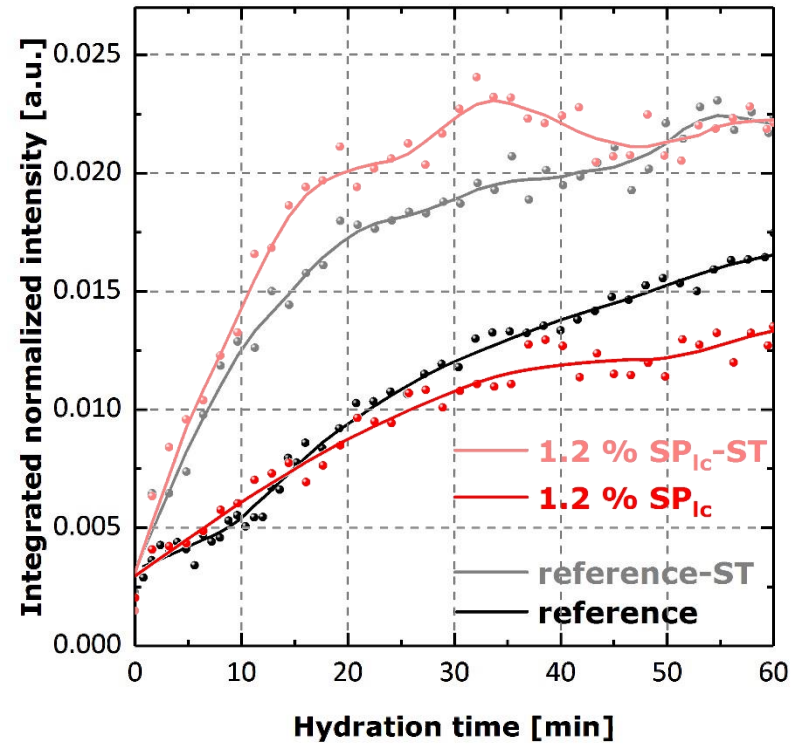
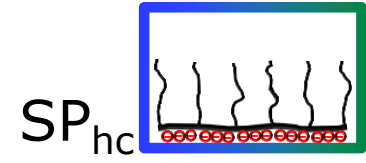
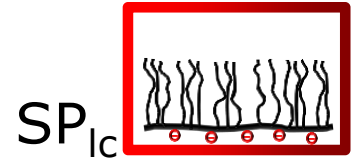


SP_{hc}

lc - low charged
hc - high charged

adsorption maximum

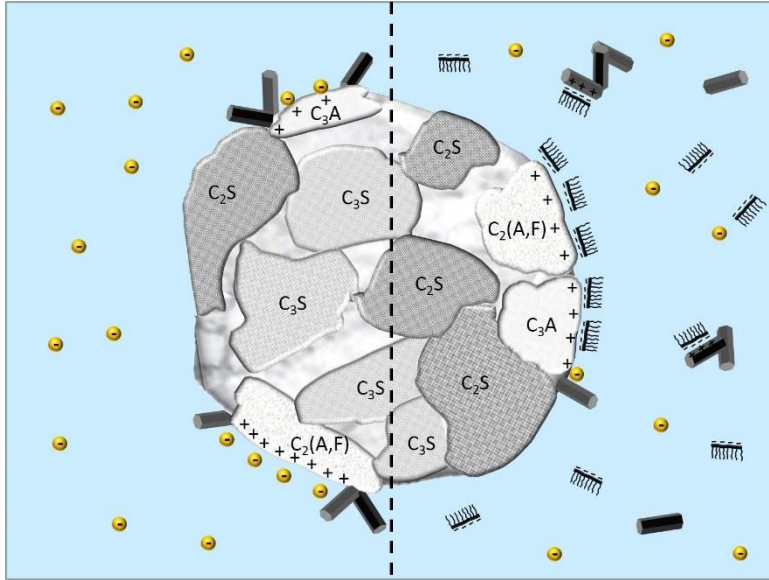




Mechanism

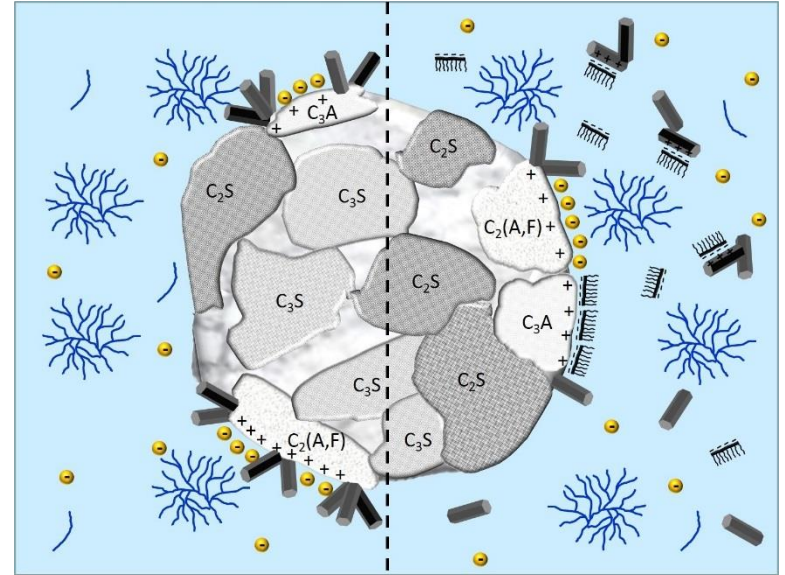
reference

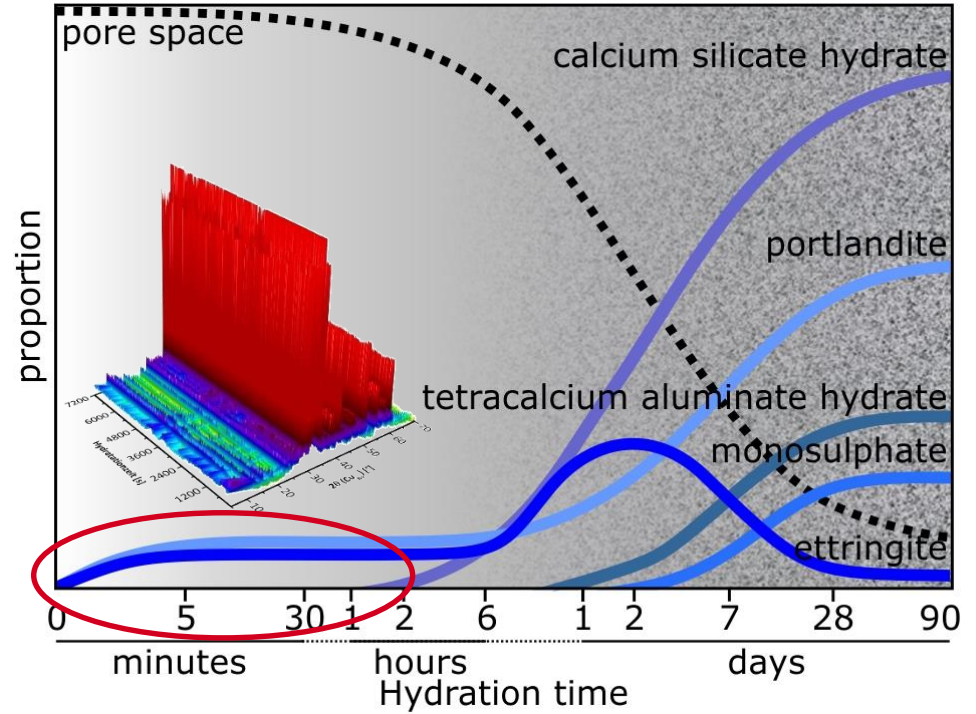
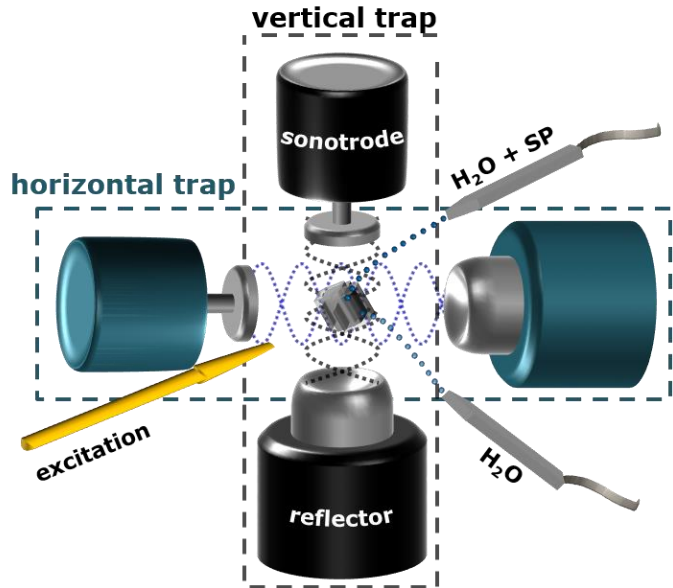
SP



ST

SP+ST







Thank you!



Bundesanstalt für
Materialforschung
und -prüfung

