

**Hydrogen Bond Induced Hetero-Assembly**  
**in**  
**Binary Colloidal Systems**

*L a n g m u i r 2 0 1 0*

*Frank M. Bayer; Karl Hiltrop and Klaus Huber\**

*Department of Chemistry, Physical Chemistry, University of Paderborn, Warburger Str.100,*

*33098 Paderborn, Germany*

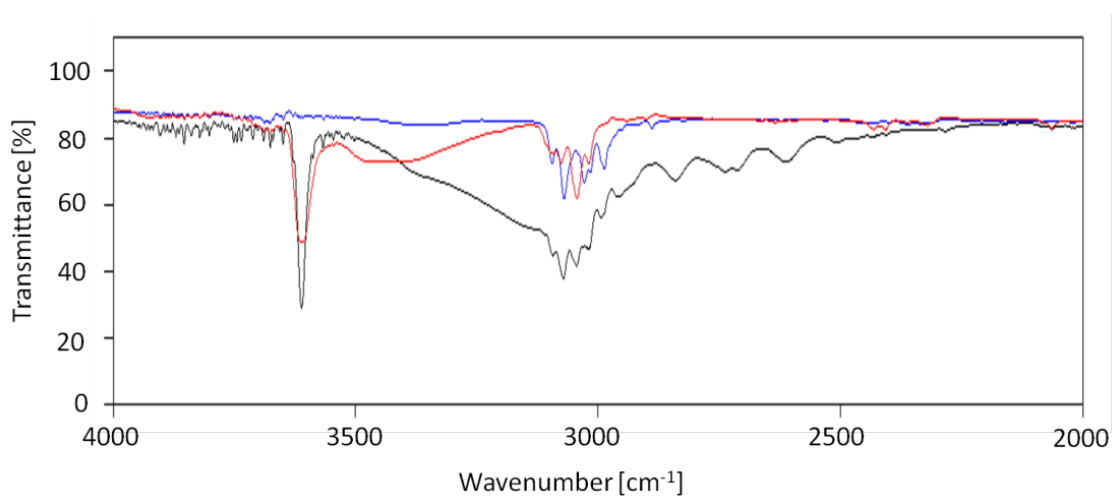
\*To whom the correspondence should be addressed:

email: [klaus.huber@uni-paderborn.de](mailto:klaus.huber@uni-paderborn.de)

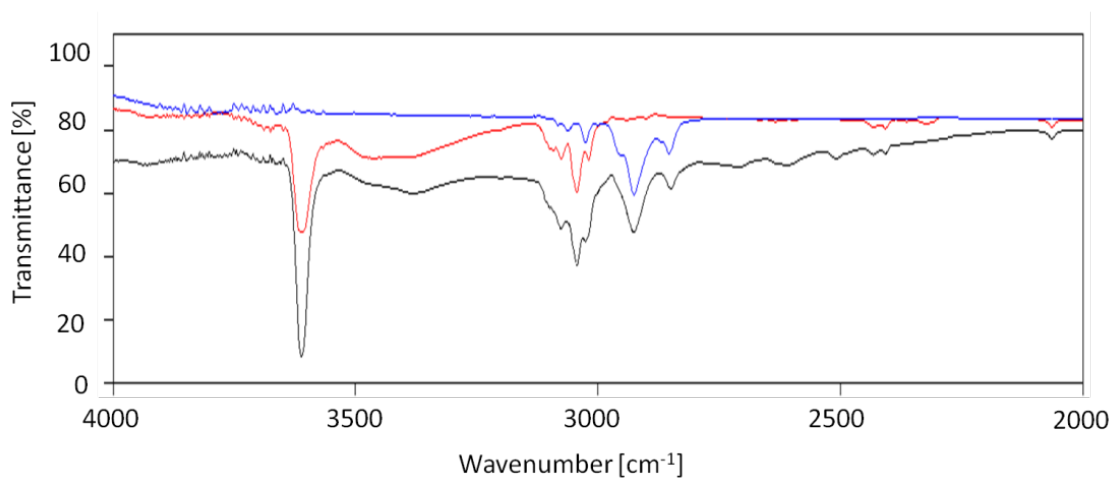
Phone: (+49) 5251 602125

Fax: (+49) 5251 604208

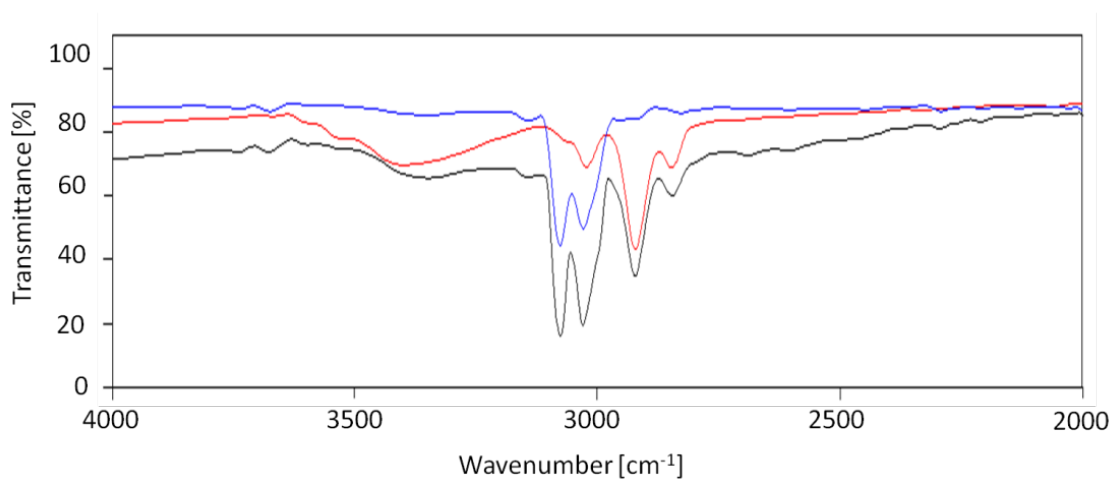
**SF1.** Pure 0.25 wt% 4VP (blue) and 0.25 wt% phenol (red) in  $\text{CCl}_4$ . The black line is showing the 1 : 1 mixture of both components in  $\text{CCl}_4$



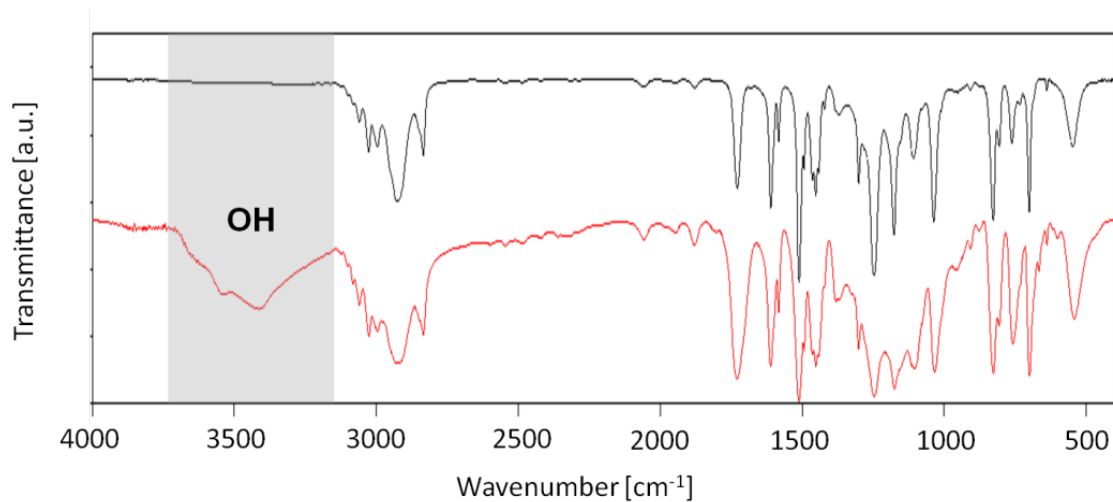
**SF2.** Single component 2 wt% 4VP-1 colloids (blue) and 0.25 wt% phenol (red) in  $\text{CCl}_4$ . The black line is showing the 1 : 1 mixture of both components in  $\text{CCl}_4$



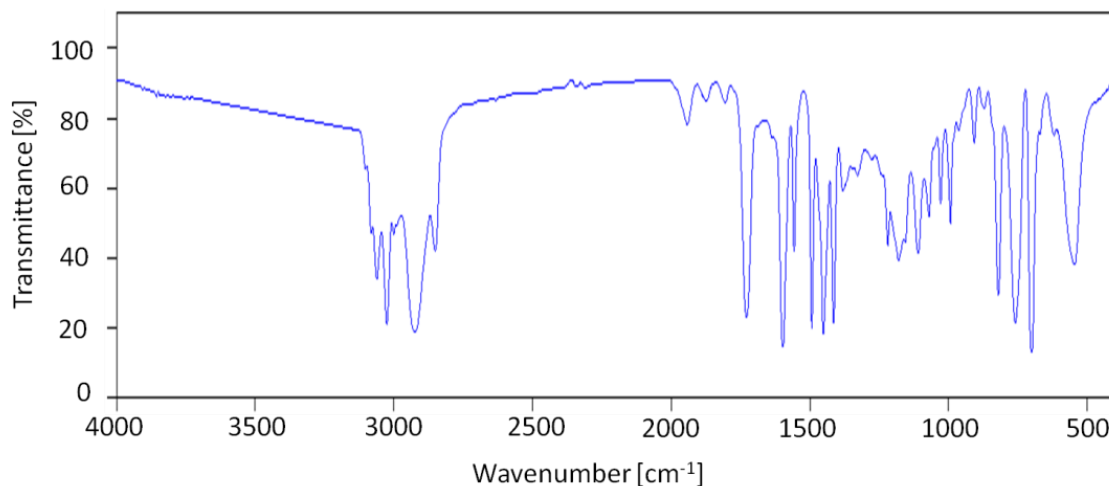
**SF3.** Single component 2 wt% 4OH-1 colloids (red) and 0.25 wt% pyridine (blue) in  $\text{CCl}_4$ . The black line is showing the 1 : 1 mixture of both components in  $\text{CCl}_4$



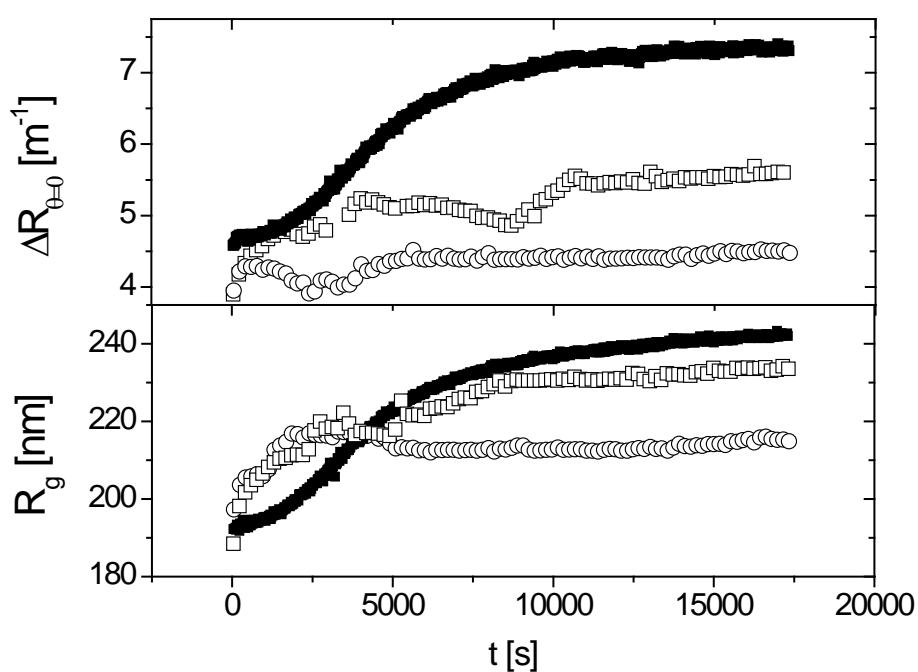
**SF4.** IR spectra. The black line is showing the phenolic methoxy functionalized precursor. The red line is showing the colloid sample 4OH-2 after silylation and hydrolysis of the given precursor. Measurements were performed with 5 wt% colloid containing KBr tablets.



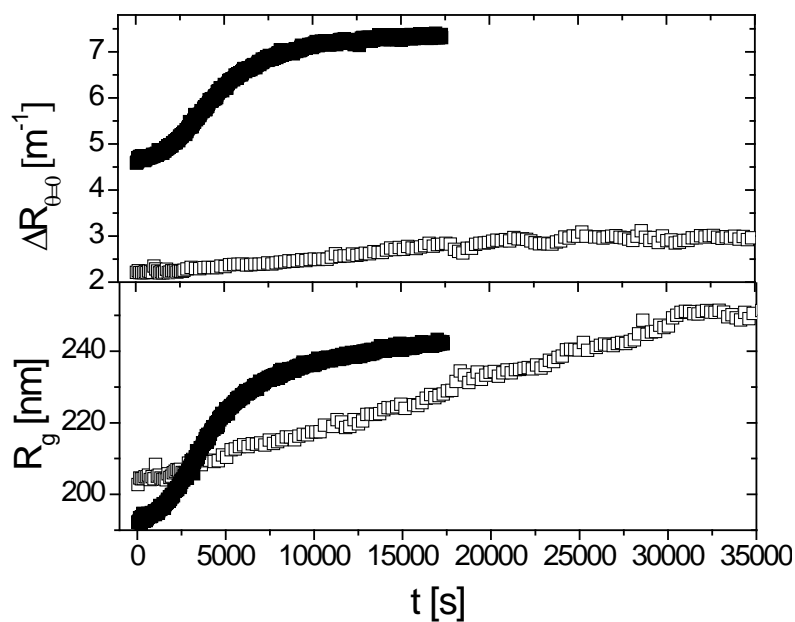
**SF5.** IR spectrum of pure 4VP-1 colloids. Measurements were performed with 5 wt% colloid containing KBr tablets.



**SF6.** TR-SLS experiments with a mixture of 4OH-3 colloids ( $R_g = 209$  nm) and 4VP-1 colloids ( $R_g = 81$  nm) in  $\text{CHCl}_3$  with a colloid ratio of 4OH-3 volume to 4VP-1 volume of 8 : 1 ( $\circ$ ), 5 : 1 ( $\blacksquare$ ) and 2 : 1 ( $\square$ ). The volume ratio was varied at constant concentration of 4OH-3 colloids and the overall colloid concentration was  $\sim 50$  mg/L.



**SF7.** TR-SLS experiments with a mixture of 4OH-3 colloids ( $R_g = 209$  nm) and 4VP-1 colloids ( $R_g = 81$  nm) with a colloid volume ratio of 5 : 1 in  $\text{CHCl}_3$ . The overall colloid concentration is  $\sim 25$  mg/L ( $\square$ ) and  $\sim 50$  mg/L ( $\blacksquare$ ).



**SF8.** TR-SLS experiment with a mixture of 4OH-3 colloids ( $R_g = 209$  nm) and 4VP-1 colloids ( $R_g = 81$  nm) with a colloid volume ratio of **5 : 1** in  $\text{CHCl}_3$  saturated with  $\text{NaCl}$  ( $\sim 1.2$  g/L). The overall colloid concentration is  $\sim 50$  mg/L.

