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Dynamic behavior of polyelectrolyte multilayer investigated by thin film calorimetry. H. HUTH, University Rostock, Inst. of Physics, Universitätsplatz 3, 18051 Rostock, Germany, R. MUELLER, MPI fuer Kolloid- und Grenzflaechenforschung, Am Muehlenberg, 14424 Potsdam, A. FERY, University Bayreuth Physical chemistry II, Universitaetsstr. 30, 95447 Bayreuth, C. SCHICK, University Rostock, Inst. of Physics, Universitätsplatz 3, 18051 Rostock, Germany — Polyelectrolyte multilayer can be easily assembled using spraying or dipping of the different polyelectrolytes [1]. The thickness of the produced layers (nanometer range) is well controlled by the preparation conditions. Only a few methods are available for dynamic investigations, as afm for mechanical properties [2]. AC-chip calorimetry is used as a very sensitive tool for calorimetric investigations of such thin films as demonstrated for thin polymeric films in a wide frequency range [3]. To investigate the dynamic behavior of polyelectrolytes the humidity is used as a new parameter in addition to temperature for calorimetry. First measurements with the modified calorimeter for the PSS/PDADMAC polyelectrolyte multilayer system are shown. Further extensions of the calorimeter for better understanding of the phase behavior are discussed. [1] Decher, G. and J.D. Hong, Phys. Chem. Chem. Phys., 1991. 95(11): 1430. [2] Mueller, R., et al. Macromolecules, 2005. 38(23): 9766. [3] Huth, H., Minakov, A. A., Schick, C., J. Polym. Sci. B Polym. Phys. 2006 44: 2996.

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