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N-H $\cdots$ π Bonding in Benzene-Ammonia Solution

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While being largely associated with the most electronegative elements N, O, and F, hydrogen bonding occurs in a variety of circumstances - one of the more exotic cases being bonding to the electron cloud of π systems of aromatic molecules. Here, we use total neutron scattering to study intermolecular interactions between benzene and ammonia. Solutions of benzene in ammonia (~1:12) were studied at room temperature and pressure of 10 bar revealing the presence of N-H···π bonds. These bonds are slightly longer than O-H···π bonds in a similar system of benzene in methanol, as would be expected due to lower electronegativity of nitrogen compared to oxygen. However, despite the increase in the distance between the atoms participating in this interaction, our findings suggest that the N-H···CoR (centre of ring) contact stays exceptionally linear similarly to the benzene-methanol system.

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Sitzung Einordnung: Mounting Posters, Beer and light Dinner

Track Klassifizierung: Condensed Matter