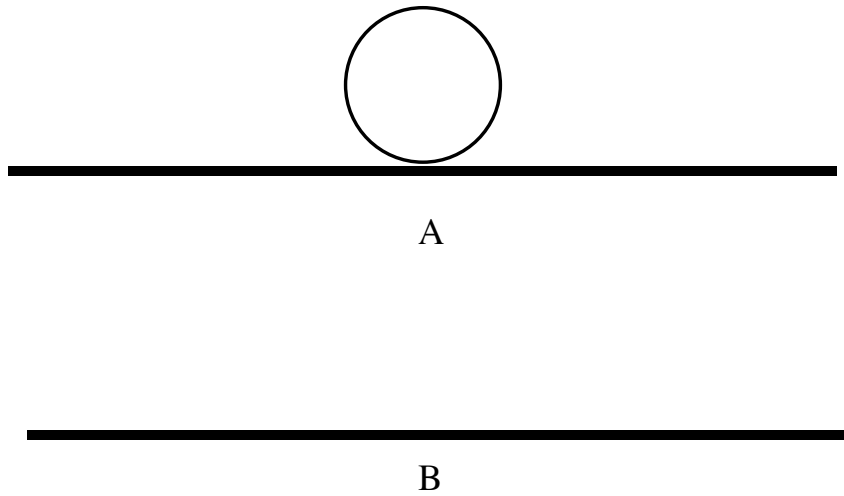


**"Adsorption transforms the interface: " Demonstration of the effects of protein adsorption.**



The Figure illustrates an experiment that will be performed in class to demonstrate the adsorption of proteins to surfaces. As illustrated in part A, a water droplet placed on the surface of an unused polystyrene cell culture dish is easily visible because it beads up, i.e. the contact angle between the droplet and the polystyrene surface is very high due to the water repellent, hydrophobic nature of polystyrene. If a cell were placed on a polystyrene dish instead of the water droplet, it also would encounter a very non-wettable surface. Part B of the figure illustrates the results of placing a water droplet on the surface of a polystyrene dish that had first been exposed to a protein solution for a short time and then rinsed extensively with water. As illustrated, no water droplet can be seen on this surface, reflecting the fact that in this case the added drop of water completely spread out over the surface of the pre-adsorbed dish. This happens because the water in part B was not able to interact with the polystyrene surface, because the surface had become coated with a layer of the hydrophilic protein adsorbate. Similarly, cells that come into contact with surfaces adsorbed with proteins do not directly “see” the substrate, but instead they interact with the intervening protein adsorbate.