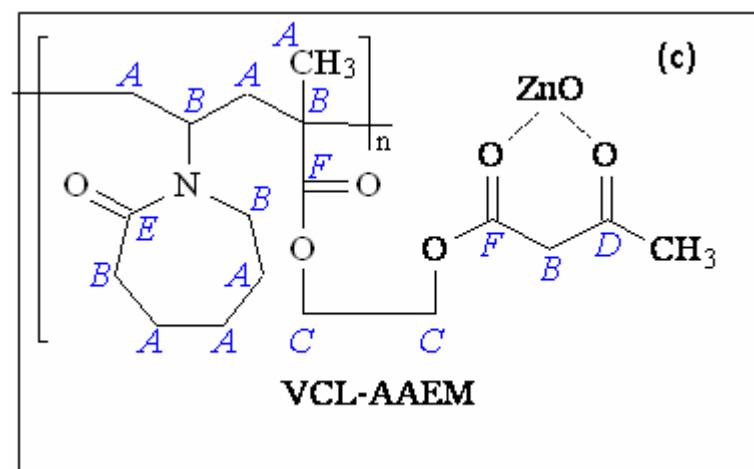
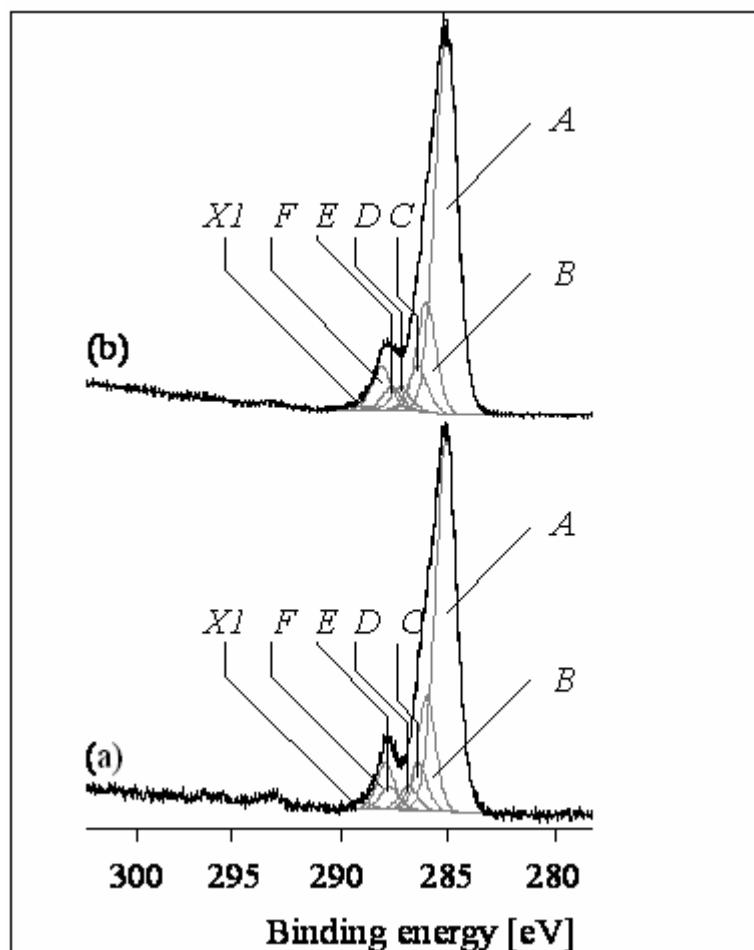


Supporting Informations



Supporting Information 1: C 1s core level XPS spectra of (a) pure microgel and (b) hybrid microgel particles. (c) Chemical structure of poly(VCL-AAEM) microgel template, illustrating different types of “C” atoms..

Supporting Information 1a and 1b show C1s core level XPS spectra of microgel particles before and after the loading of ZnO nanoparticles respectively. These C 1s spectra can be deconvoluted into the six component peaks (named as *A*, *B*, *C*, *D*, *E* and *F*) showing the different carbons of the VCL-AAEM polymer (as shown in Supporting Informations 1c). An additional component peak *XI*, has also been added to get a good fitting of the results, which indicates presence of a small traces of carboxylic acid groups in both cases.

It is interesting to note that the binding energy of the C=O group (component peak corresponding to Carbon “*D*”) is shifted to a higher binding energy after the deposition of ZnO from 286.85 eV to 287.72 eV. It can be attributed to the interaction of this group with Zn⁺² species as electron density in the C=O bond is lowered by the electron transfer from this group to the ZnO nanoparticles. In hybrid microgel, component peak *F* also shows a slightly increased binding energy than that of pure microgel. The apparent small difference in the binding energies ($|\Delta BE| = 0.08$ eV) of component peaks *F* in these two spectra suggest that the ester groups also interact with the introduced ZnO nanoparticles.