

## **ACTION OF CAPILLARY FORCES OF WATER CONFINED AT THE NANO-SCALE DURING DESICCATION OF VIRUSES**

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We have analyzed by Atomic Force Microscopy the structural effects of desiccation on individual particles of the bacteriophage  $\phi 29$  and a parvovirus, the minute virus of mice. In both cases the genomic DNA was ejected from the capsid. However, the structural integrity of the minute virus of mice capsid was essentially preserved after DNA ejection, while the  $\phi 29$  capsid underwent important structural changes intimately related to the amount of DNA ejected. These changes eventually provoked a wall-to-wall collapse of the  $\phi 29$  capsid. We provide evidence that the capillary forces are the main responsible of these effects. Moreover, we found that the different structure of these two viruses to be crucial influences in the way in which they are affected by water menisci forces at the nanoscale.