Abstract Submitted
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**Imaging of DNA/Nanosphere Condensates**[1] R. KRISHNAN, T. JALEEL, T. NORDLUND, Univ. of Alabama/Birmingham — DNA forms condensates in a variety of environments. In chromatin, DNA is condensed around 10-nm-diameter, positively-charged histone complexes. To model chromatin formation in cells, lambda-phage (16 microns long) and herring sperm (0.03 to1 micron) DNAs were mixed with polystyrene nanospheres of diameter 40nm and 930nm containing $1.8x10^4$ and $2.6x10^8$ positive surface charges, respectively, to form condensates. Sphere concentrations were 1-2 times the isoelectric concentration. Condensation vs time was imaged at various concentrations, pH's, viscosities, and ionic strengths. Bright-field and fluorescence (YOYO-1 dye bound to DNA) images were recorded. In general HS DNA aggregate size increased with time. Except in 0.5-0.8 M KCl, herring sperm DNA formed one huge aggregate (100's of microns) and depleted other areas, both in 10% and 20% glycerol. Phage DNA samples rapidly formed longer, fiber-like aggregates. Within 2 hours it formed ordered structures and in most samples, empty, apparently depleted regions were found in the viewing area. Shapes of the phage-DNA aggregates in 20% glycerol, in contrast, formed small clumps like HS DNA.

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