

## **Techniques used for Biophysical Characterization: Examples and bibliography**

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This short lecture discusses the strong importance and reciprocal impact of analytical science and nanotechnology: in fact nanotechnology progress is strongly related to advancement in biophysical evaluation. Sure, analytical nanotechnology constitute the last step in the biophysical characterization of different nano suspensions. However, the “nanoscale” concept has introduced a new scenario where physicochemical principles, laws and properties are quite different from those of the micro worlds and from different nano-worlds: the difference between different particles and used materials leads to different methods of characterization.

Generally the biophysical analysis were divided in steps:

- evaluation of raw matter “as arrived”
- Analysis during preparation of nanomaterials (reaction control or aggregation evaluation ...)
- Characterization of final nanomaterial

Proteins, polymers, lipids or mixed materials will be evaluates in different way thanks to the different origin, so different skills are necessary.

For these reasons, a lot of authors and researches extends the classical analytical approaches to the biophysical innovative analysis, depending of the material used. From dynamic light scattering to nuclear magnetic resonance, from all chromatographic methods with multiple detection to calorimetric analysis, from electrophoresis to microscopy, the world of biophysical characterization is clearly near to nano-world