Characteristic ZnO nanoparticle formation in electric and plasma fields.

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Zinc oxide nanoparticles produced by burned zinc in air were shown the characteristic tetrapod shape, because II-VI or III-V compounds were polar crystal.

In this report, smoke particles of zinc oxide were produced both the electric field and plasma field. The spherical particles were predominately produced both fields.

The doping of transition metals can be easily done by the production in the plasma field. The color of zinc oxide particles were changed by doping. The doping position were determined.

On the other hand, zinc oxide particles with the multiple twined shape was produced in the electric field. Since the multiple twined particles were produced in II-VI compounds, the electric field effect have been discussed as the problem of the alteration of ionic bonding due to the electric field. In the case of plasma field, we can selectively doping the metal into the oxide particle. The effective use of the plasma field to change the optical nature of the particle has been presented.