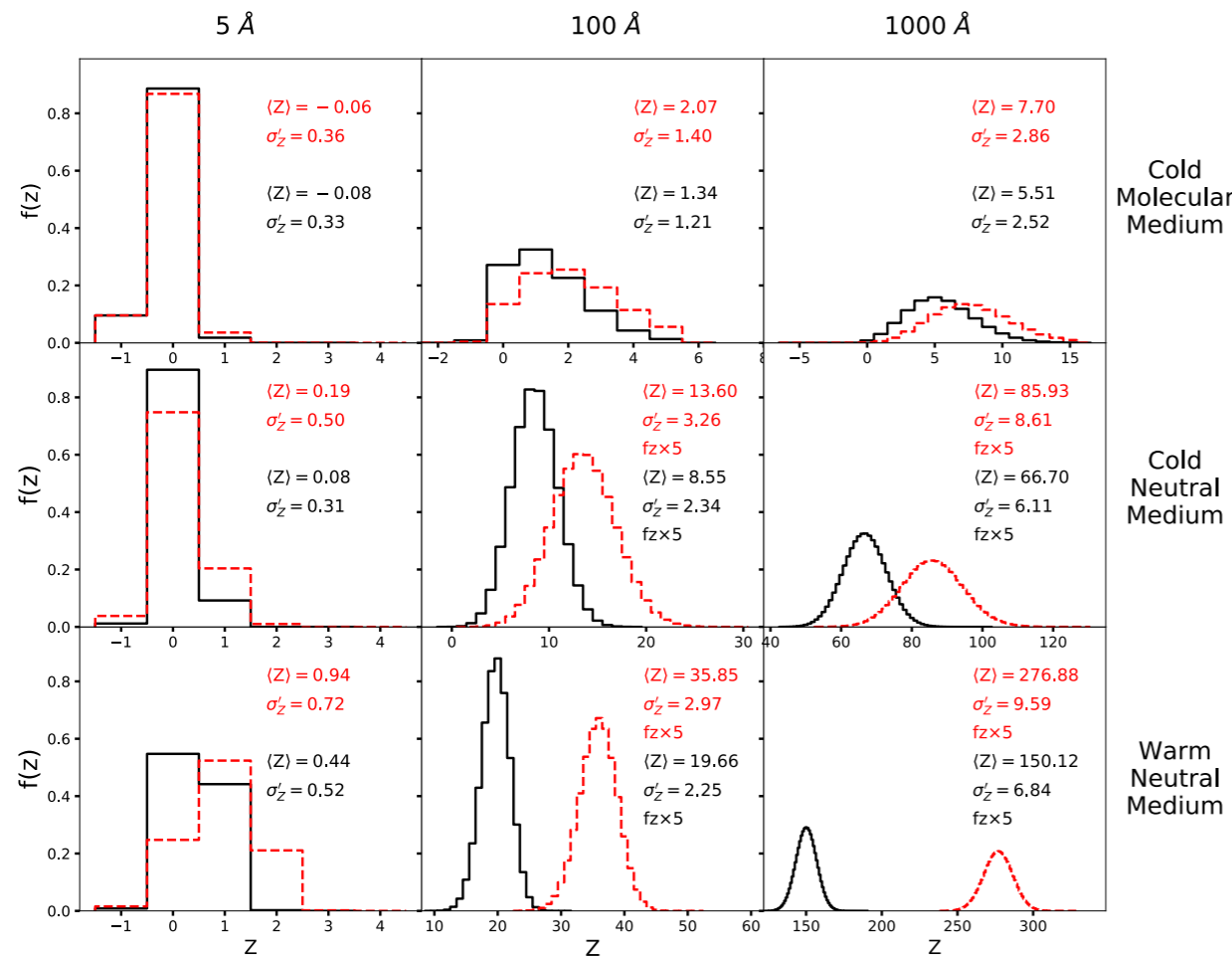
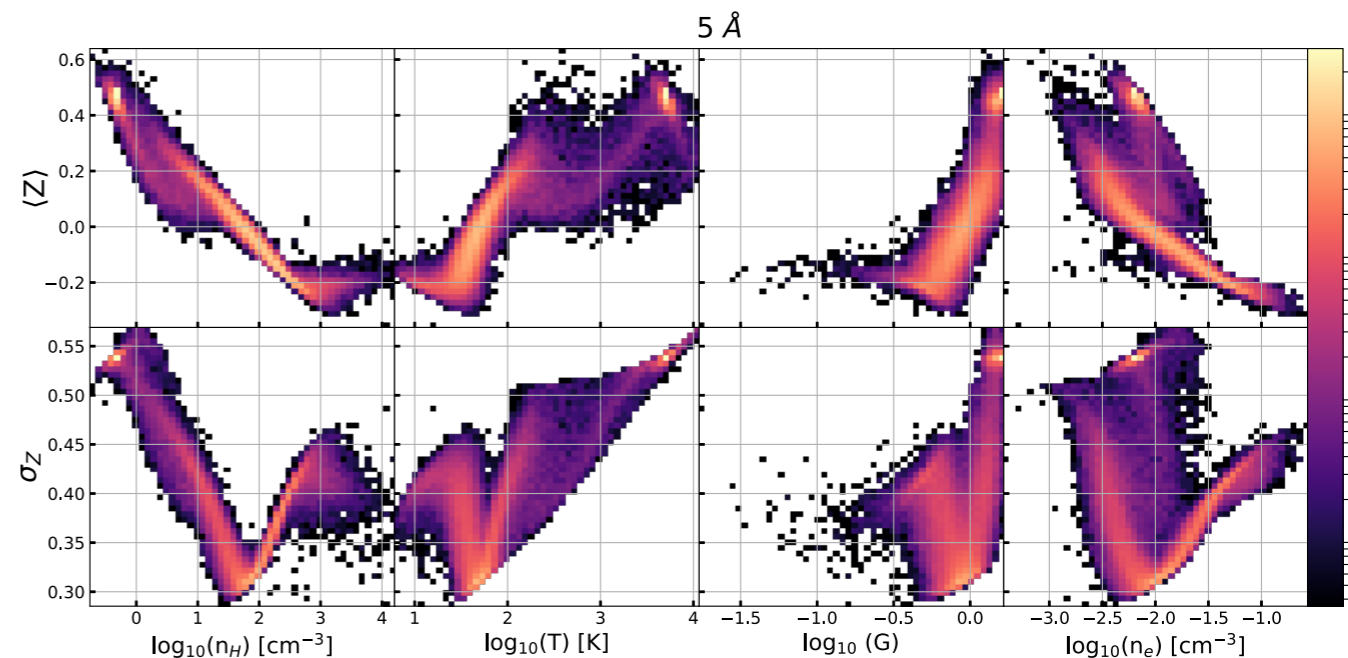


Charge distribution of dust grains in the ISM

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The charge distribution depends on: grain composition, grain size, ambient temperature, electron density, local radiation field and CR ionisation rate.



We calculate the equilibrium charge distribution of silicate and carbonaceous grains in the interstellar medium including:

- Collisional charging by ions and electrons.
- Photoelectric charging by the interstellar radiation field.
- Charging by supra-thermal electrons from secondary ionisations by cosmic rays.
- Photoelectric charging by cosmic-ray induced diffuse UV field.

We derive parametric equations to calculate the centroid and width of the distribution for grains between 3.5\AA to 1000\AA , to be implemented in numerical simulations and chemical models.