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Simplified method for calculation of equilibrium plasma composition

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Highlights.

1. The method for the investigation of multi-component plasma equilibrium composition is proposed.
2. The new form of the distribution functions corresponding to the maximum entropy principle is derived.
3. The expressions for the equilibrium particle concentrations corresponding to these distribution functions are obtained.
4. The determination of equilibrium plasma composition is reduced to the solution of only one equation.
5. The proof of the existence of the unique positive solution of this equation is given.

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