# Emission characteristics of dust in cooling plasma


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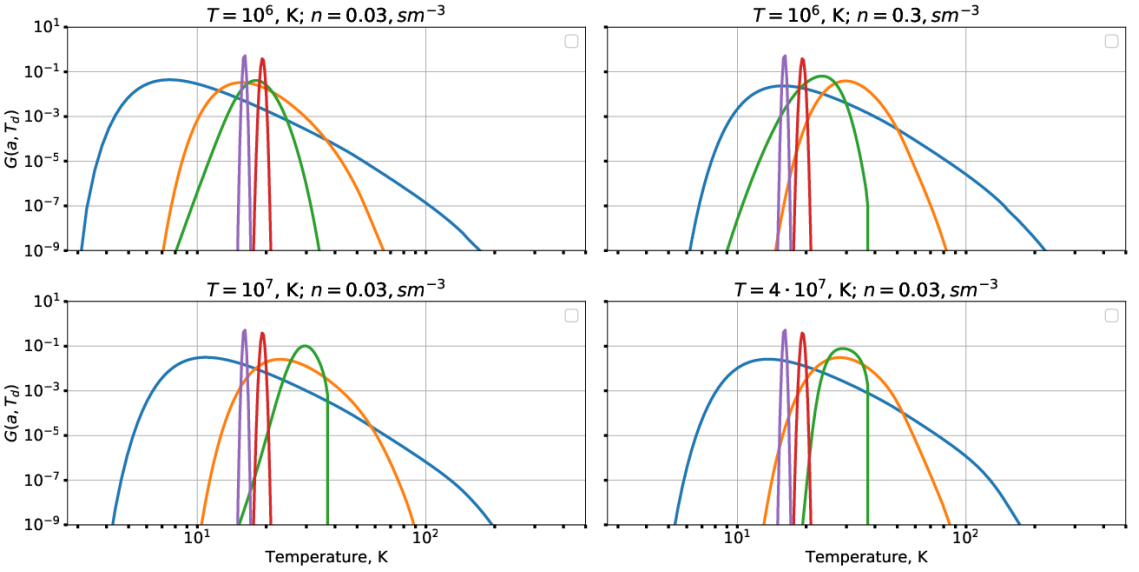
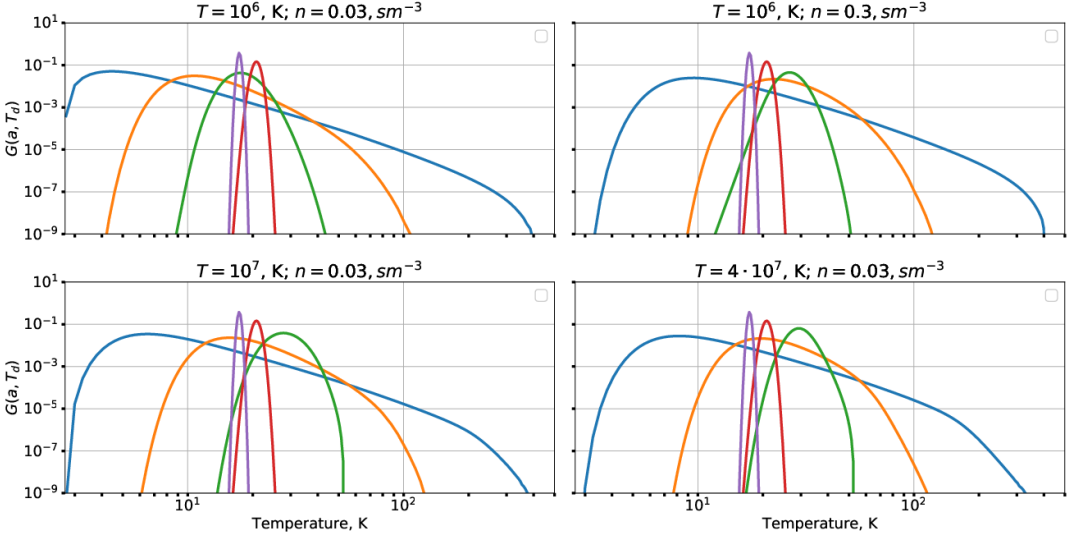
Temperature distribution functions

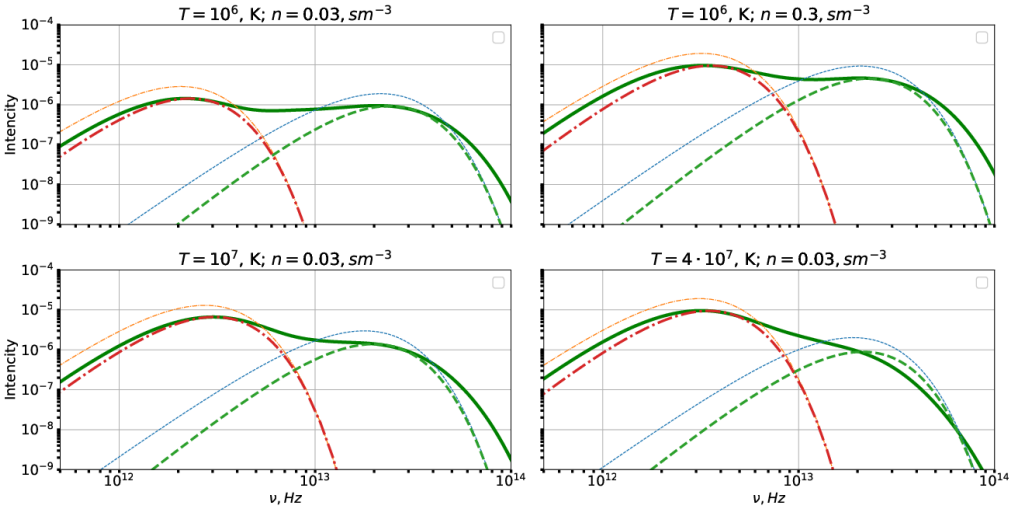


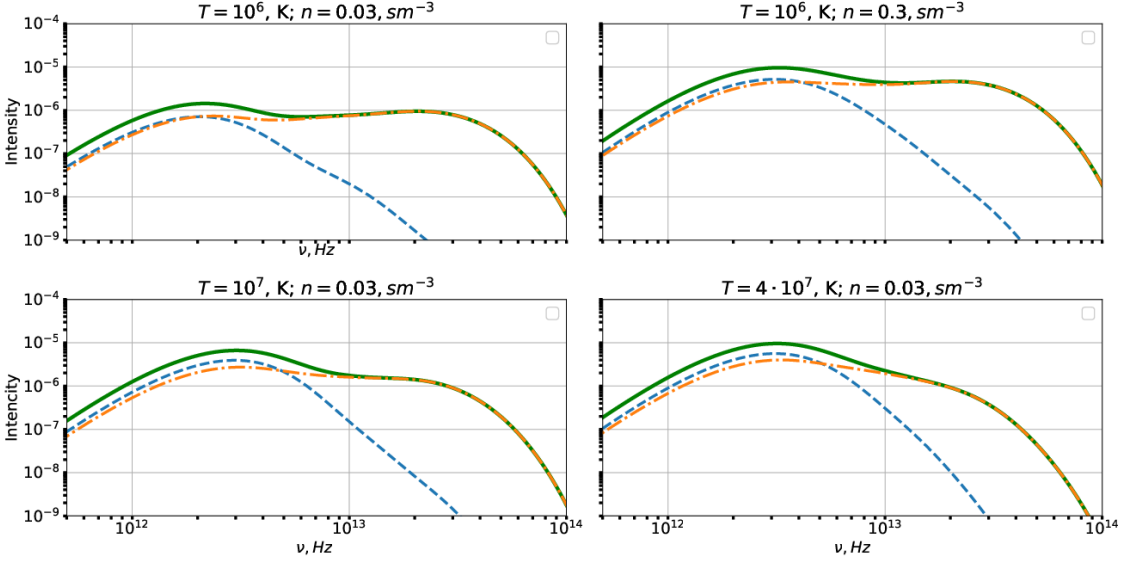

Silicate

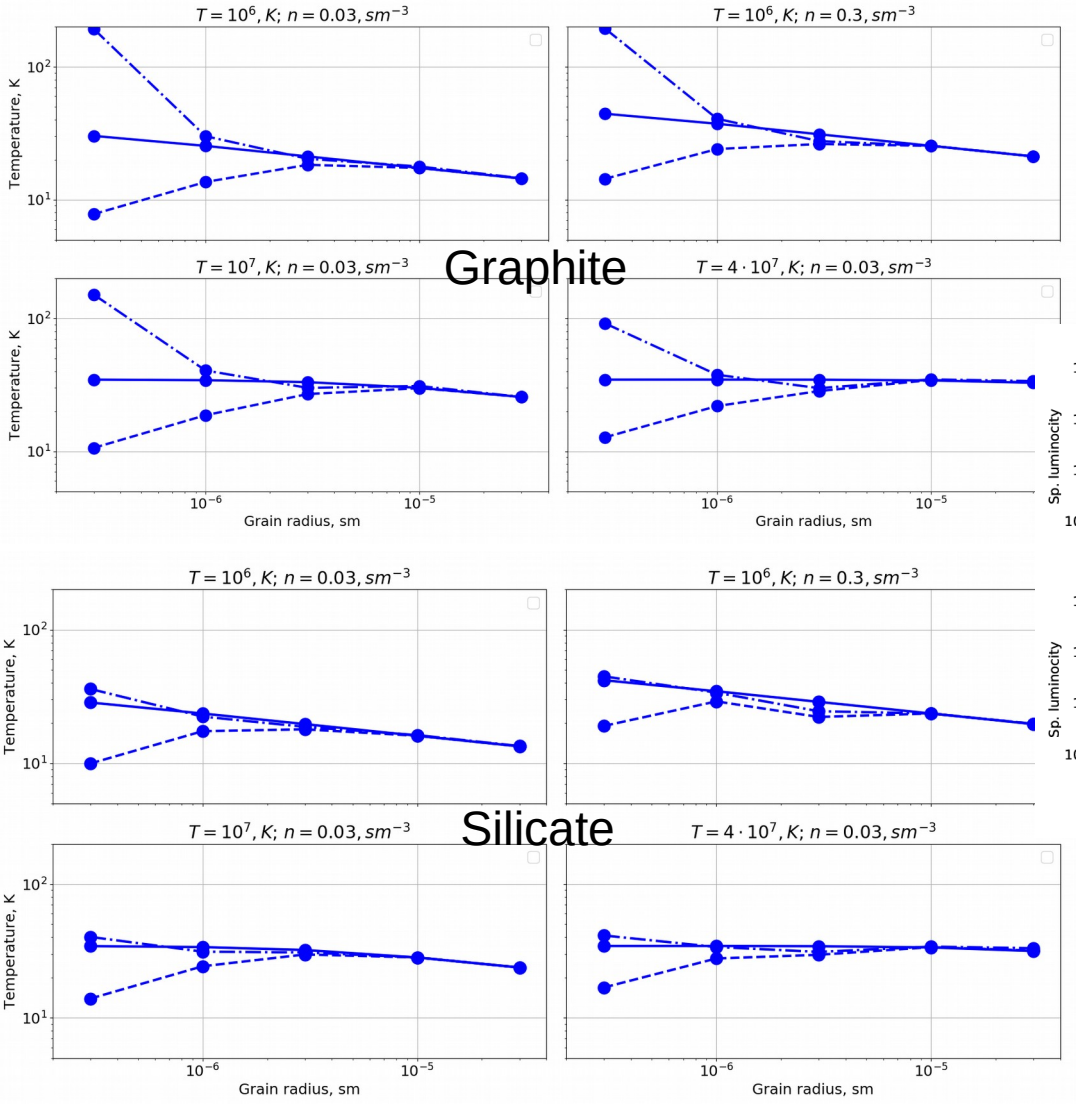
Graphite

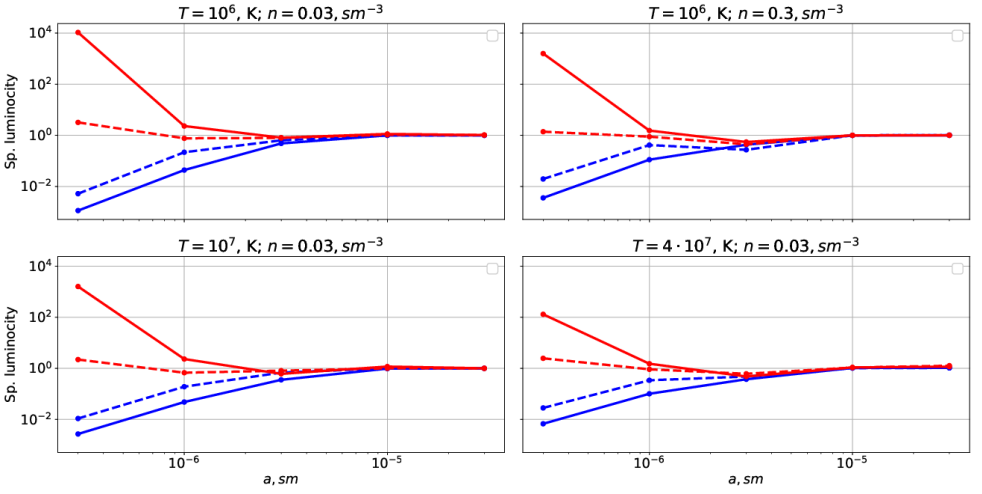



30 A, 100 A, 300 A, 1000 A, 3000 A


$T = 10^6$, K; $n = 0.03, sm^{-3}$
$T = 10^6$, K; $n = 0.3, sm^{-3}$
$T = 10^7$, K; $n = 0.03, sm^{-3}$
$T = 4 \cdot 10^7$, K; $n = 0.03, sm^{-3}$
Intencity
$\nu, Hz$


$T = 10^6$, K; $n = 0.03, sm^{-3}$
$T = 10^6$, K; $n = 0.3, sm^{-3}$
$T = 10^7$, K; $n = 0.03, sm^{-3}$
$T = 4 \cdot 10^7$, K; $n = 0.03, sm^{-3}$
Intencity
$\nu, Hz$


Graphite
Silicate
$T = 10^6, K;\ n = 0.03, sm^{-3}$
$T = 10^6, K;\ n = 0.3, sm^{-3}$
$T = 10^7, K;\ n = 0.03, sm^{-3}$
$T = 4 \cdot 10^7, K;\ n = 0.03, sm^{-3}$
Temperature, K
Grain radius, sm


$T = 10^6$, K; $n = 0.03, sm^{-3}$
$T = 10^6$, K; $n = 0.3, sm^{-3}$
$T = 10^7$, K; $n = 0.03, sm^{-3}$
$T = 4 \cdot 10^7$, K; $n = 0.03, sm^{-3}$
Sp. luminocity
$a, sm$

# Conclusion

- The emissivity of small dust grains assigned to the mass unit significantly exceeds that for larger sizes and for dust grains with equilibrium temperature.
- The emission spectrum of dust shows a bimodal shape, resembling that of two-temperature spectrum.
- The main contribution to the high-frequency excess dust emission is made by graphite dust, since it has a greater number of grains with a high temperature.