Exercise 11

Introduction to Computational Astrophysics, SoSe 2024

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Task 1. *Inelastic neutron scattering*

Solution. From the table, it can be noticed that as the fraction of energy loss increases, the more neutrons are captured and the less neutrons are transmitted. For easy comparison, all parameters other than the fraction f were set as: $pc = 0.33, ps = 0.67, \lambda = 1, E_{initial} = 1, t = 1$, number of neutrons = 10000.

f	captured	reflected	transmitted
0	0.4915	0.4148	0.0937
0.05	0.5795	0.4200	0.0005
0.1	0.5791	0.4207	0.0002
0.5	0.9380	0.0620	0

Table 1: Task 1

□

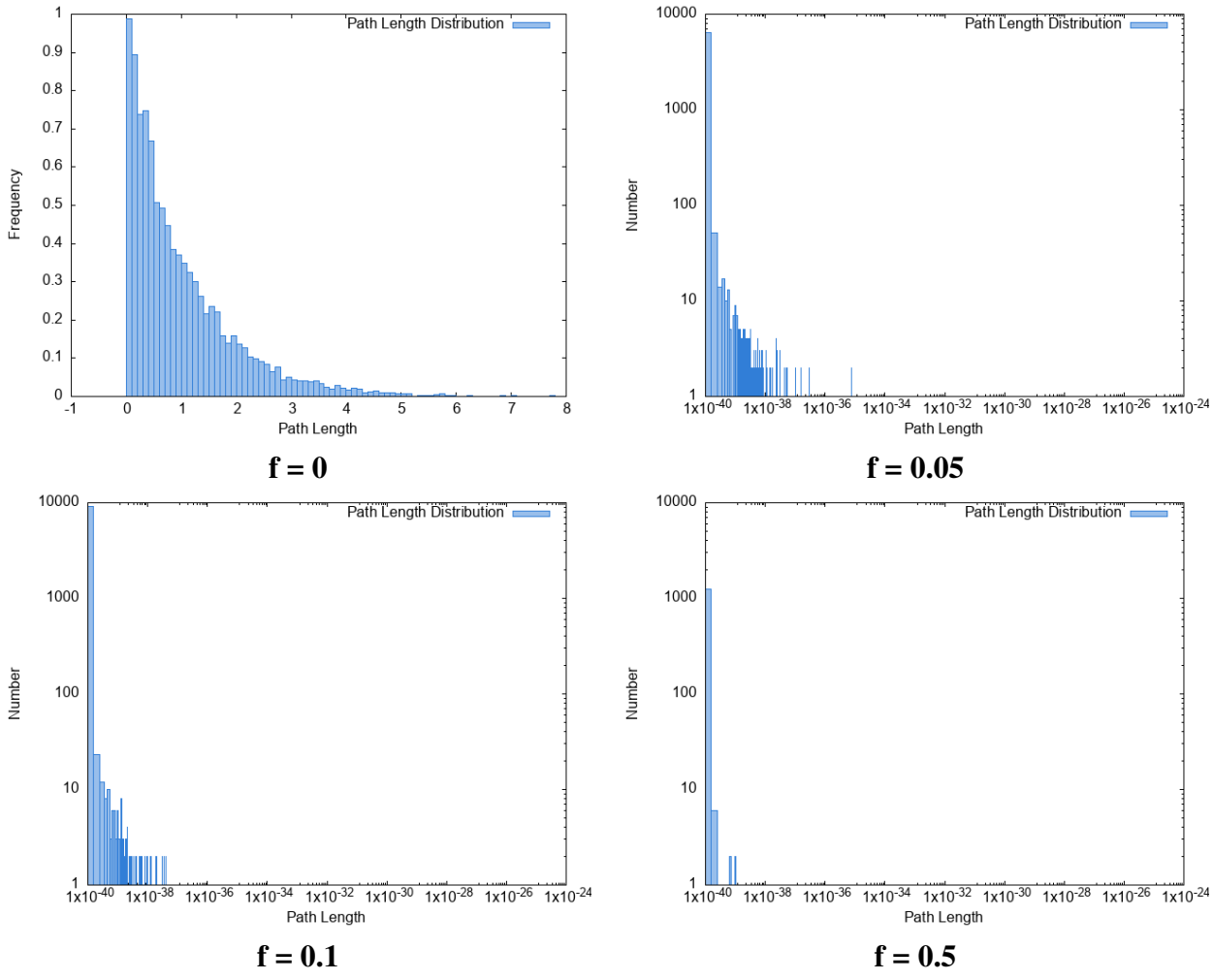

Table 2: Histogram of the length of each step