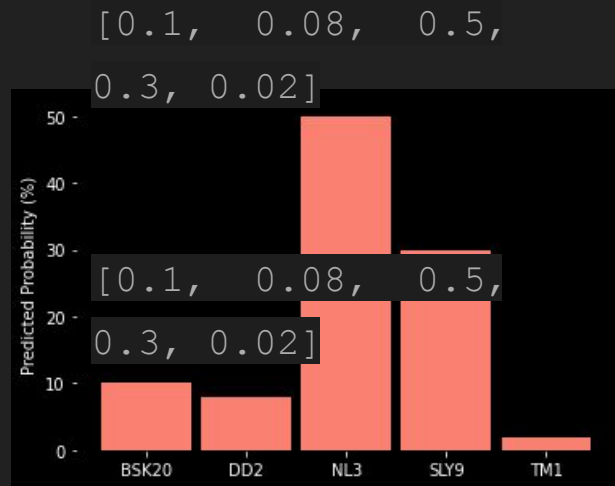
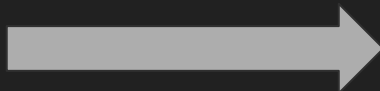
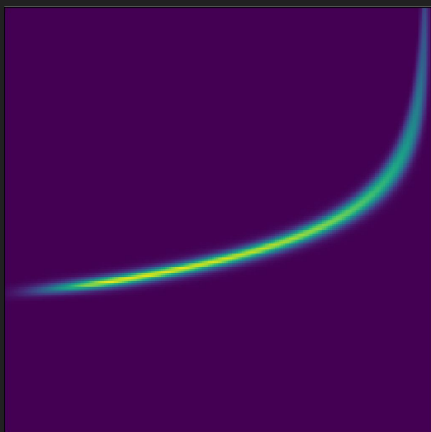


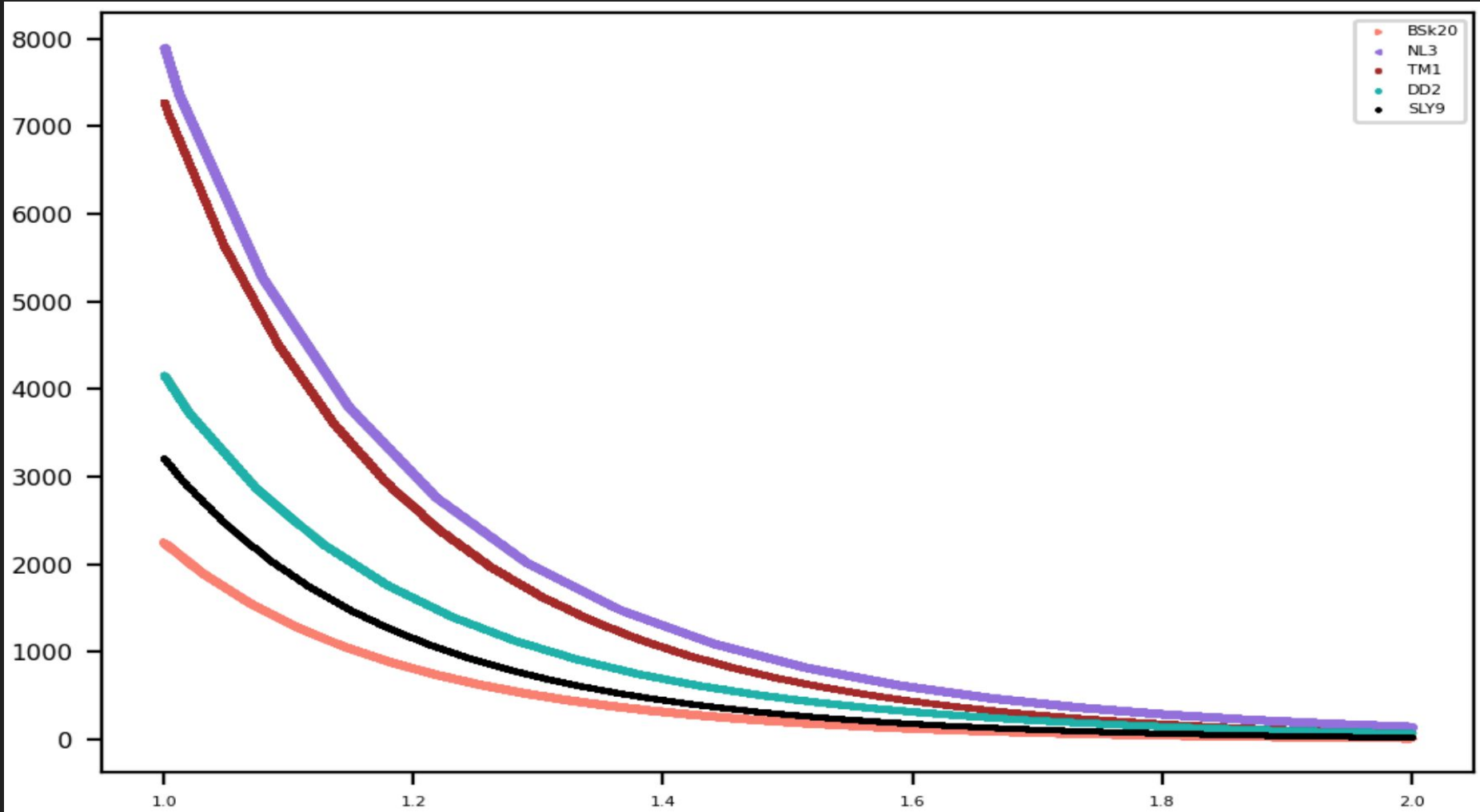
“Classification of Neutron Stars’ Equation of State, from Gravitational Waves, using machine learning algorithms”

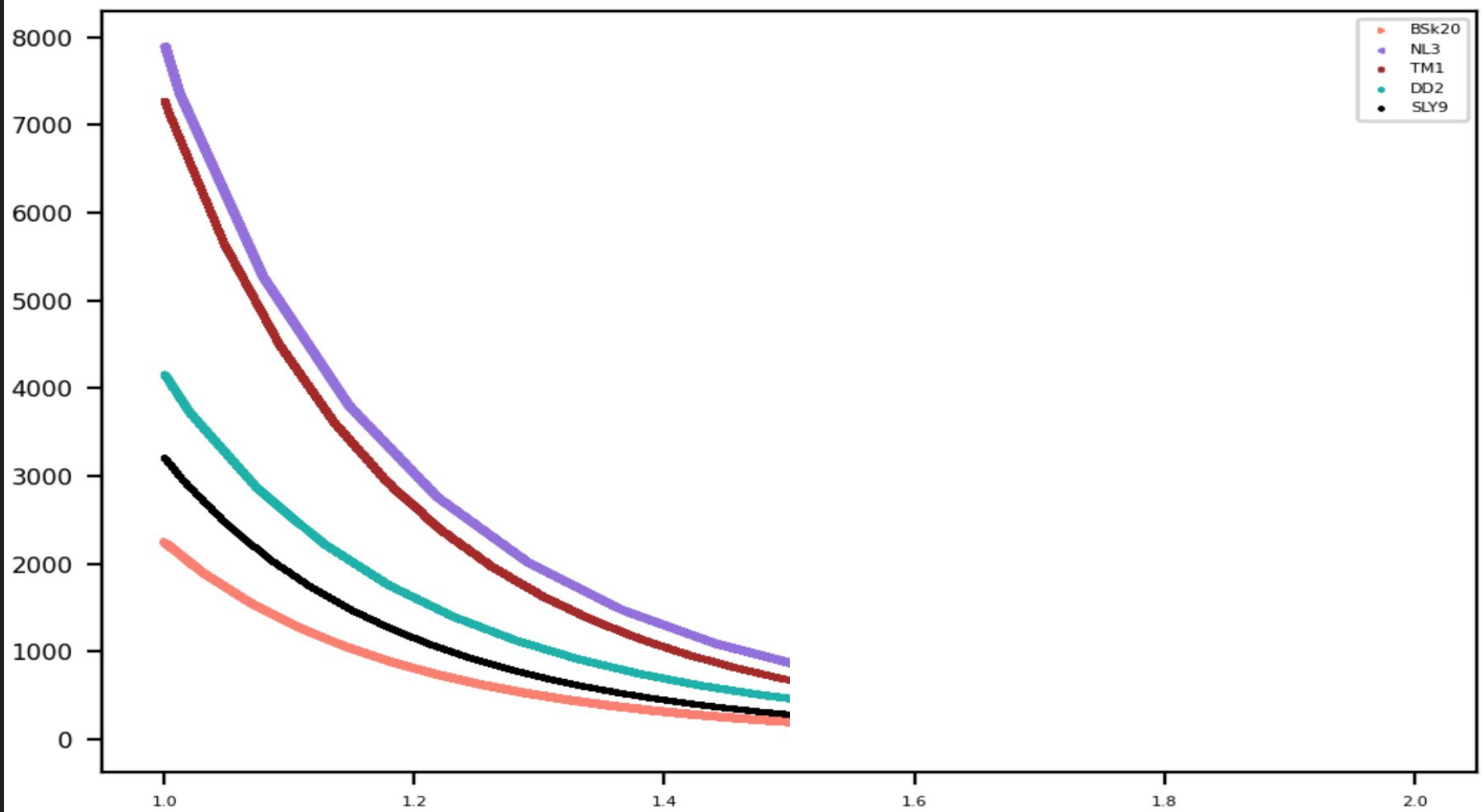
G. Gonçalves, J. Aveiro, M. Ferreira, A. Onofre, F. F. Freitas, C. Providência, J. A. Font

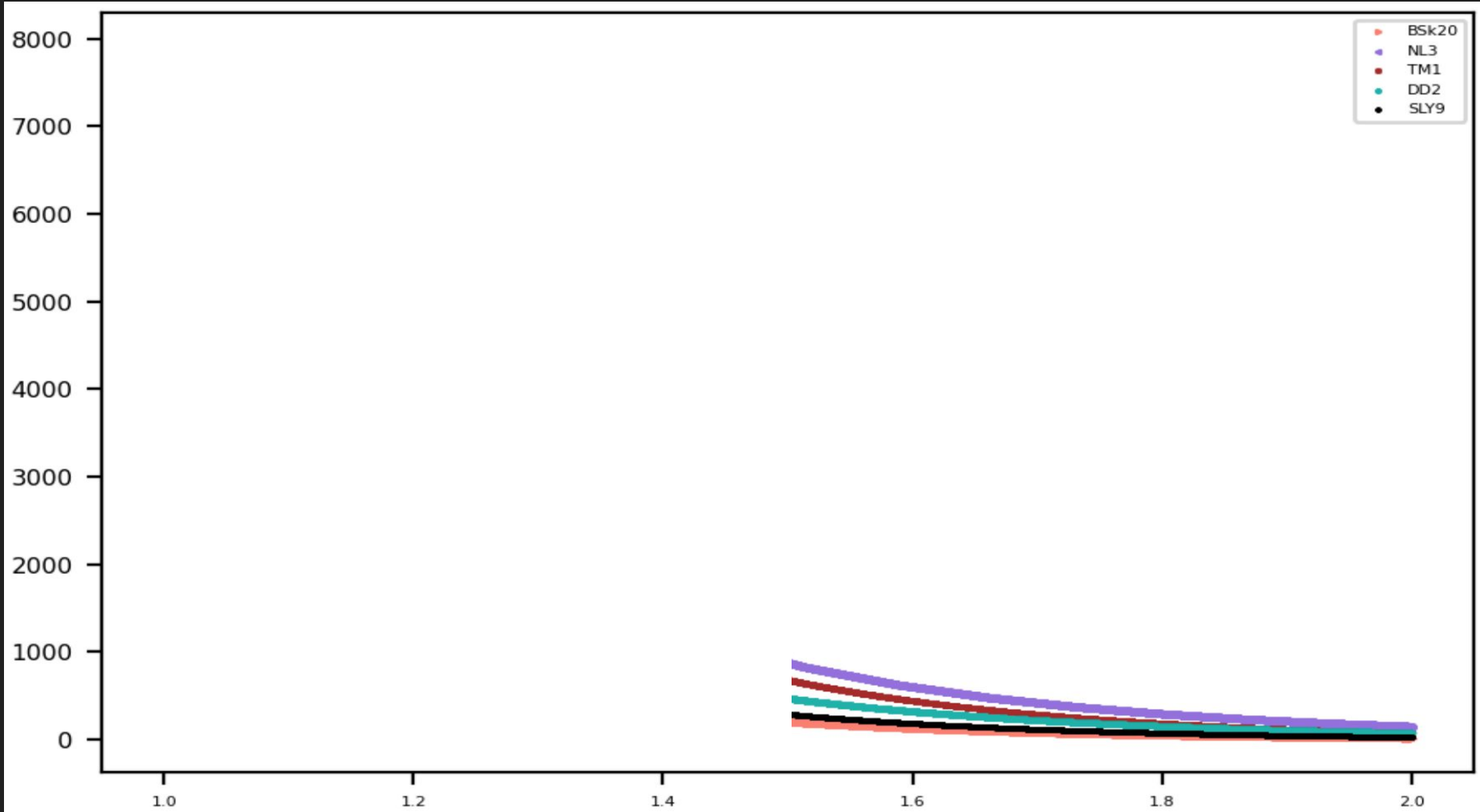
SAMPLE → MODEL → PREDICTION

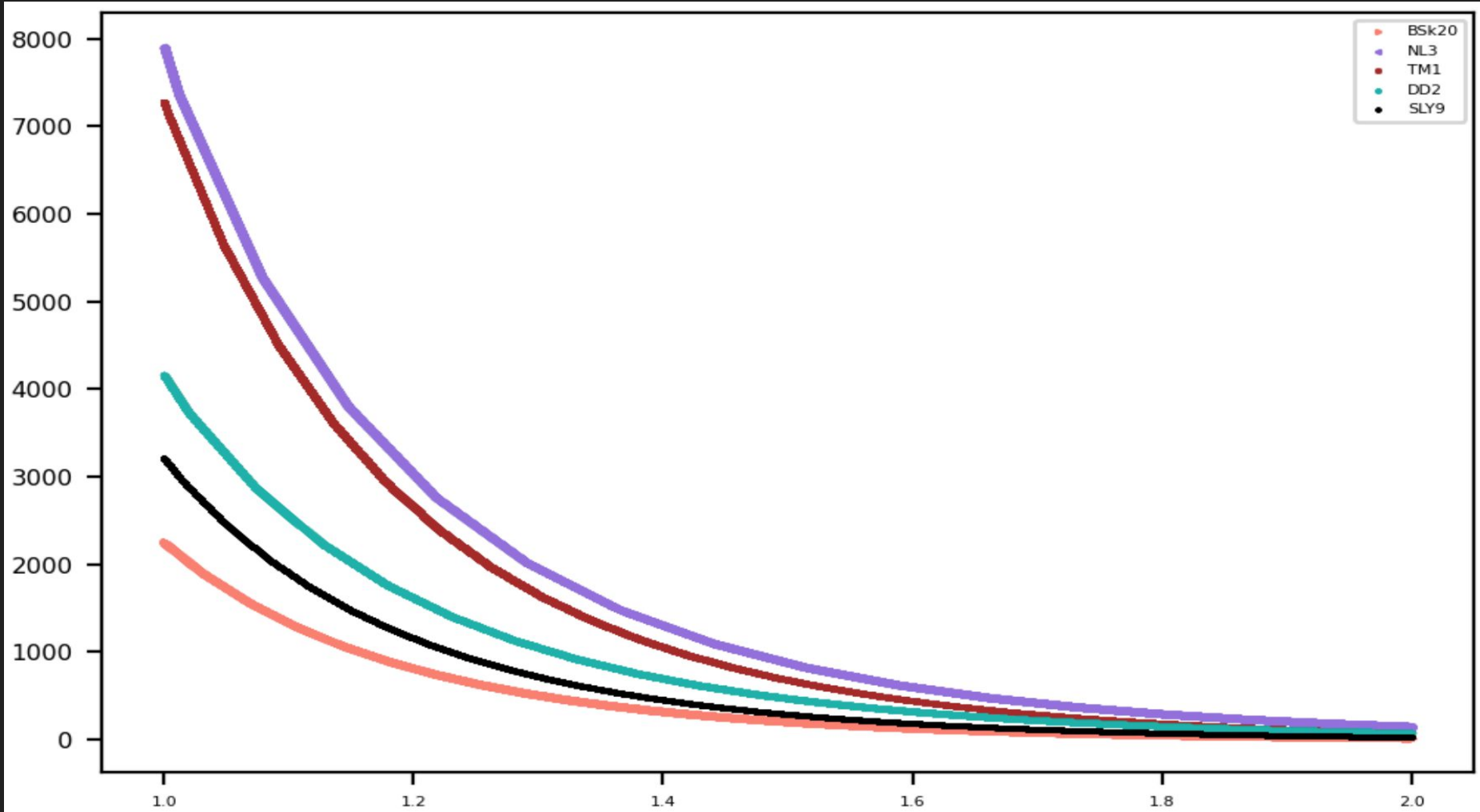
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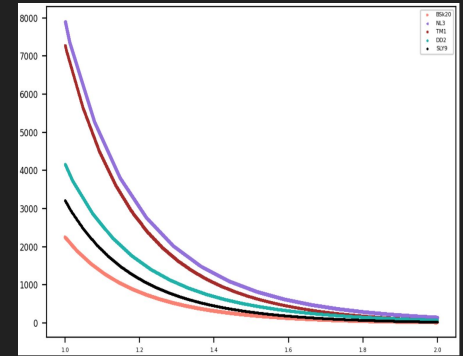
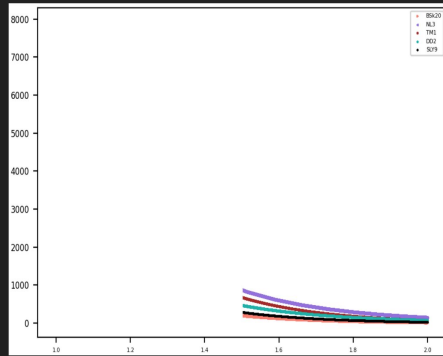
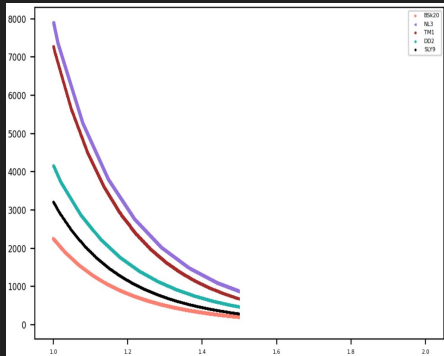
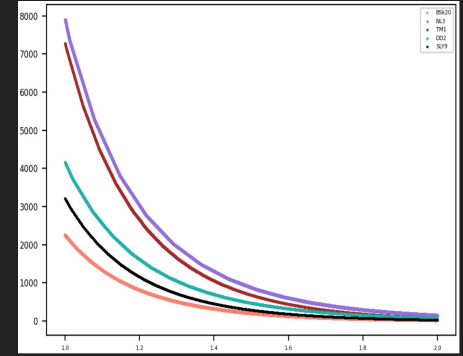
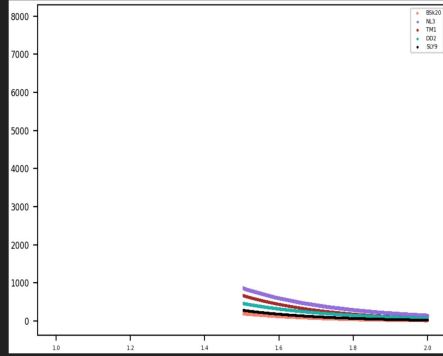
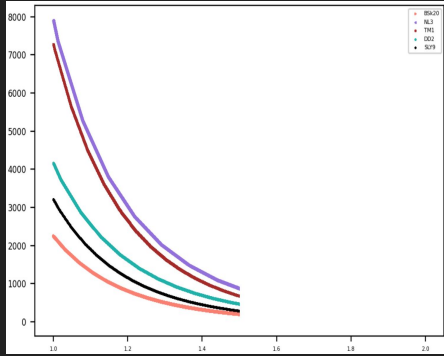




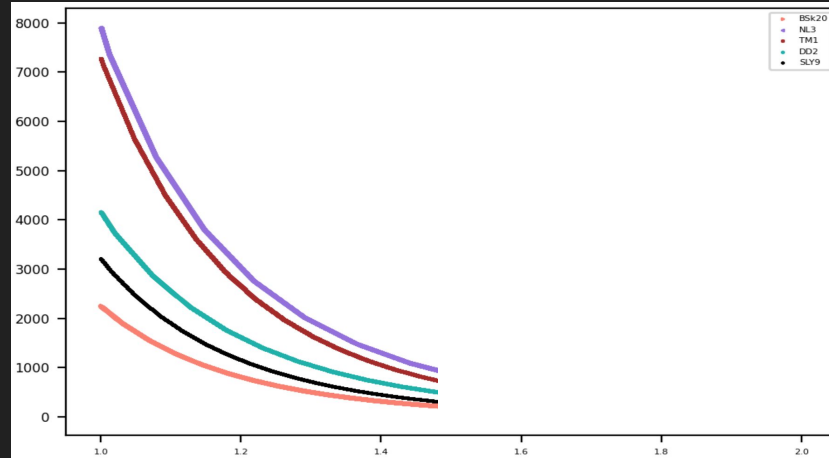




Model

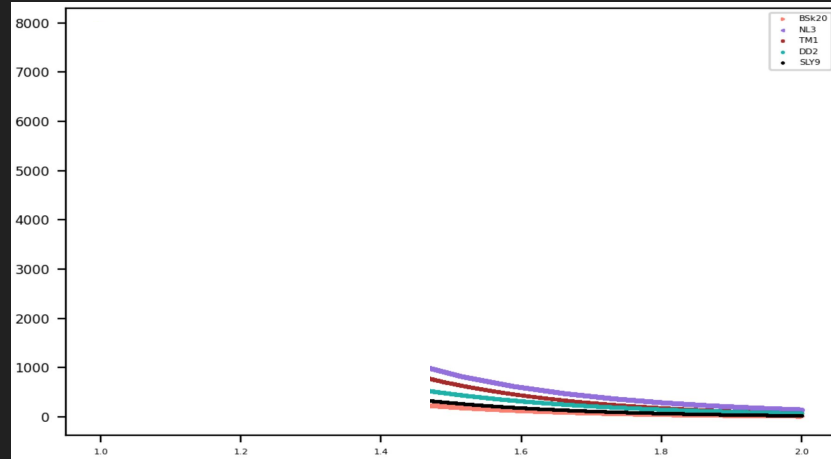


Model trained on the range [1, 1.5] Solar Masses



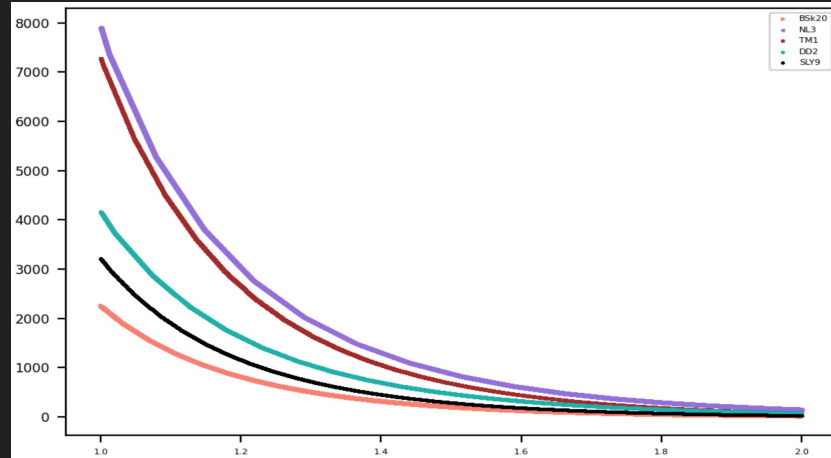
	BSk20	DD2	NL3	SLY9	TM1	Avg.
top-1 (%)	96.5	74.6	92.1	72.8	71.9	81.58
top-2 (%)	99.4	81.5	100	99.6	99.2	95.94

Model trained on the range [1.5, 2] Solar Masses



	BSk20	DD2	NL3	SLY9	TM1	Avg.
top-1 (%)	84.0	37.1	97.5	22.1	44.7	57.08
top-2 (%)	91.7	73.6	98.8	90.6	96.2	90.18

Model trained on the range [1, 2] Solar Masses



	BSk20	DD2	NL3	SLY9	TM1	Avg.
top-1 (%)	87.6	58.0	97.4	31.5	41.6	63.22
top-2 (%)	95.8	78.2	100	95.6	98.6	93.64

Model trained on [1, 1.5] Solar Masses:

	Bsk20	DD2	NL3	SLY9	TM1	Avg.
top-1 (%)	96.5	74.6	92.1	72.8	71.9	81.58
top-2 (%)	99.4	81.5	100	99.6	99.2	95.94

Model trained on [1, 2] Solar Masses, tested on [1, 1.5]:

	Bsk20	DD2	NL3	SLY9	TM1	Avg.
top-1 (%)	99.6	80.8	91.9	47.3	67.6	77.44
top-2 (%)	99.8	87.3	99.8	99.4	97.2	96.7

Model trained on [1.5, 2] Solar Masses:

	BSk20	DD2	NL3	SLY9	TM1	Avg.
top-1 (%)	84.0	37.1	97.5	22.1	44.7	57.08
top-2 (%)	91.7	73.6	98.8	90.6	96.2	90.18

Model trained on [1, 2] Solar Masses, tested on [1.5, 2]:

	BSk20	DD2	NL3	SLY9	TM1	Avg.
top-1 (%)	98.1	54.9	99.8	24.6	52.5	65.98
top-2 (%)	97.2	88.4	100	97.2	98.8	96.32

Thank you for your attention.

