Dear editors,

Once again, thank you for your effort in editing the manuscript. We also thank the scrupulous reviewer, who was able to list some additional points, despite our meticulous analysis of the manuscript. We included all the referee's remarks, listed below (in blue).

Reviewer's comments:

The presentation of the manuscript has been improved, and many typos and errors have been removed.

I list some minor points/typos in the following:

1 - Abstract : phantom lasso is mentioned without being defined

2 - line 29 : some motifs ARE

3 - line 43 : specify the polymer model you use for the prediction. e.g. "from the structure generated via random walk".

4 - line 48 : The definition of phantom lasso is still not clear. How is the tail connected to the loop? Phantom lassos are not just "polymers deprived ..." they are composed by a loop and a tail.

5 - line 60 : I would refer to Fig 2A

6 - line 75 : AT temperature T

7 - line 161 : p was already defined before the equation

8 - line 175 : refer to eq. 6, defining the distention

9 - line 204 : the thread thickness does not influence the value of Rg asymptotically

10 - line 227 : non-threaded

11 - line 265 : ONE OF the biological realizations...

12 - line 270 : versus the probability of trivial lassos occurrence in phantom lasso polymers.

13 - line 277 : The procedure is still not clear to me. Maybe for clarity it would be beneficial to add few words to specify the procedure (even though it is explained in detail in the SI).

S1 - "analogical" is not probably the correct word

S8 - I don't understand the "number of loops" on the y axis of the spectrum.

S8 – EncompaSS

As stated above, we included all the reviewer's remarks. In particular, we expanded the procedure used to obtain Fig. 6B (remark 13), and rephrased the point-by-point explanation in the SI. We hope, that now the procedure is crystal-clear.

Once again, we thank the reviewer for additional comments, and hope, that our work now is now suitable for high standards of Polymers.

Yours sincere,

Paweł Dąbrowski-Tumański, Bartosz Greń and Joanna I. Sułkowska