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## **Pre-Viva Report on the Thesis of Salvatore Ferrone**

Dear colleagues,

The thesis under review is an excellent piece of work. It is extremely well written, with a clear and logical structure that guides the reader through the motivation, theory, methodology, results, and implications. The author explains the procedures in remarkable detail, ensuring that the adopted methods, as well as their simplifications, are transparent and well justified. Importantly, the discussion provides a faithful interpretation of the results, explicitly considering how the underlying assumptions may impact the conclusions.

The list of references is comprehensive, carefully explained, and highly relevant to the work, situating the thesis firmly within the current state of the art.

### **Strengths:**

- Clear exposition and organization throughout the thesis.
- Methods are robust, and simplifications are consistently documented and justified.
- Results are thoroughly discussed in light of the assumptions, making the conclusions reliable and credible.
- The development and application of the tstrippy tool represents a significant contribution to the field.
- The thesis offers new insights into the formation of extra-tidal debris and the impact of perturbations on stellar streams.

### **Questions to raise in the viva:**

- Could one attempt to fit all stellar streams simultaneously in order to constrain the underlying model parameters? At that stage, should the contributions of the LMC and Sagittarius dwarf be included explicitly?
- In terms of dynamical heating and perturbations, are globular clusters more damaging than dark matter subhaloes?
- The models are integrated for 5 Gyr under the assumption of a static globular cluster potential. How should we treat globular clusters that may have been disrupted within the past 5 Gyr? Could they play a significant role in shaping current tidal features?

-Related to the above, how should one model giant molecular clouds, whose lifetimes are only of order 200–500 Myr?

**Recommendation:**

I recommend the thesis be passed (I found a few minor errors, mostly typographical).

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Jorge', with a large, sweeping loop and a horizontal line extending to the right.

Professor Jorge Peñarrubia

Edinburgh, 29th September, 2025