Assignment 1: Gravitational braids

The `AMUSE` package is installed on the local machines in the following directory: `/software/amuse/amuse-11`.

1. Find a partner to who you pair up. You will work together for the remainder of this course. The exam, however, you have to do alone.
2. Create an account on `BitBucket`. In the readme you put your contact information.
3. Install `AMUSE` in your local directory at the Sterrewacht computer.
4. Read chapter 1 of the `AMUSE` book.
5. Small programming assignment:

   There are no analytic solutions to the classic Newtonian 3-body problem. Part of the reason is that it is a chaotic problem. Until [Moore(1993), Montgomery(1998)] discovered the figure-8 equal-mass triple system, which is a stale configuration of thee equal mass particles that seem to chase each other in a figure 8-like configuration. Recently more of such solutions ware found by [Li et al.(2017)Li, Jing, & Liao].

   Reproduce one of the calculations for the planar three-body problems with unequal masses and zero angular momentum from [Li et al.(2017)Li, Jing, & Liao].

   Either write your own N-body code to realize this, in the language of your choise, or use AMUSE.

References

[Li et al.(2017)Li, Jing, & Liao] Li, X., Jing, Y., & Liao, S. 2017, ArXiv:1709.04775

[Montgomery(1998)] Montgomery, R. 1998, Nonlinearity, 11, 363

[Moore(1993)] Moore, C. 1993, Physical Review Letters, 3675