Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Student number\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Home assignment 2**

On grid , particle surrogate method (PSM) gives the second order ordinary differential equations



for a vibration problem of a string of length *L*. Assuming that the horizontal tightening *S*, cross-sectional area *A*, density of material *ρ*, and spacing *h* of the grid points are constants, derive the angular speeds and the corresponding modes of the free vibrations.