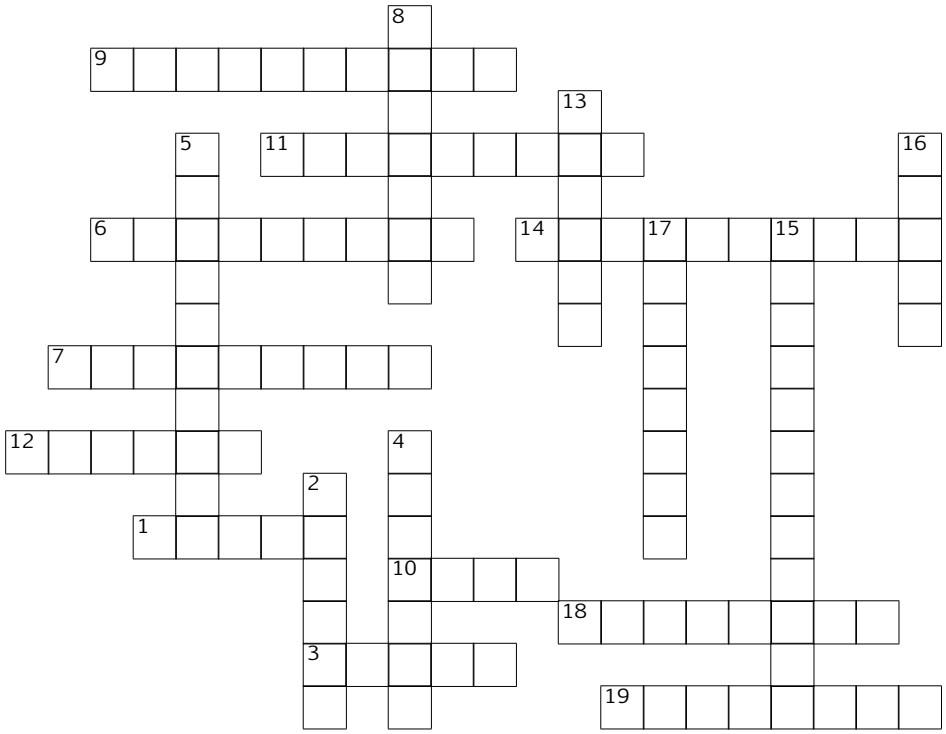
Radiation force: waves on a string

CNLD Group Meeting

September 10, 2025



Across

1 _____ measured the parallax of the Great Comet of 1577.
3 _____ explained the orientation of the tails of comets by drawing an analogy to acoustics.
6 This is the order of the wave variable at which radiation force is studied.
7 The _____ energy of a string with tension $\mathcal{T}$ is $\frac{1}{2}\mathcal{T}(\partial\xi/\partial x)^2$, where ξ is the transverse displacement.
9 The _____ density equals $L = T - U$.
10 $\mathcal{T}\xi_{xx} - \rho_0\xi_{tt} = 0$ is the _____ equation, where ρ_0 is the density of the string.
11 $I = -\mathcal{T}(\partial\xi/\partial x)(\partial\xi/\partial t)$ is the _____ of a wave on a string.
12 $\partial I/\partial x + \partial E/\partial t = 0$ is a statement of _____ conservation; its electromagnetic version is known as Poynting's theorem.
14 The _____ coefficient equals A_r/A_i.
18 Acoustic radiation force when volume is constrained is named after _____.
19 $\partial g/\partial t = \partial S/\partial x$ is a statement of _____ conservation at quadratic order.

Down

2 _____ wrote that "the matter of a comet is... driven away in the direction of the solar rays to form the tail."
4 _____ wrote that "there is a pressure in the direction normal to the waves... equal to the energy in unit of volume."
5 Taylor Wang flew aboard the _____ in 1985 to conduct radiation force experiments.
8 The _____ energy of a string is $\frac{1}{2}\rho_0(\partial\xi/\partial t)^2$.
13 $S = L - \rho_0(\partial\xi/\partial t)^2$ is the radiation _____.
15 The _____ coefficient equals A_t/A_i.
16 _____ experimentally demonstrated that particles in a standing wave accumulate towards the nodes.
17 Acoustic radiation force in free space is named after _____.