| **Parametrization** | $\alpha'$ (fN · m) | $m'$ ($\mathrm{mm}^{-1}$) | $\phi$ |
|---|---|---|---|
| Newtonian | $0.0001^{+0.0007}_{-0.0007}$ | — | — |
| Yukawa | $(7.2 \pm 2.9) \times 10^7$ | $366.1^{+64}_{-47}$ | — |
| Oscillating ($\phi$ fixed) | $0.0042^{+0.0020}_{-0.0020}$ | $65.29^{+0.93}_{-0.84}$ | — |
| Oscillating ($\phi$ free) | $0.0042^{+0.0012}_{-0.0015}$ | $65.28^{+0.20}_{-0.21}$ | $(0.756^{+0.15}_{-0.15})\pi$ |

**Table 1**. The best-fit parameters obtained for the three parametrizations (eq. (2.1), eq. (2.2), eq. (2.3)) by $\chi^2$ minimization.

| **Parameter** | **Prior** | **Minimum** | **Maximum** |
|---|---|---|---|
| $\alpha'$ (eq. (2.1)) | Uniform | -0.05 | 0.07 |
| $\alpha'$ (eq. (2.2)) | Uniform | 0 | $1.0 \times 10^8$ |
| $\alpha'$ (eq. (2.3)) | Uniform | 0 | 0.01 |
| $m'$ (Yukawa) | Uniform | 0 | 500 |
| $m'$ (Oscillating) | Uniform | 60 | 70 |
| $\phi$ (Oscillating with phase free) | Uniform | 0 | $2\pi$ |

**Table 2**. List of priors used to evaluate the Bayesian evidence for each of the three different models. The units for $\alpha'$ and $m'$ are in fN · m and $\mathrm{mm}^{-1}$ respectively.