Fourier issiqlik tenglamasi — PDF hisobot

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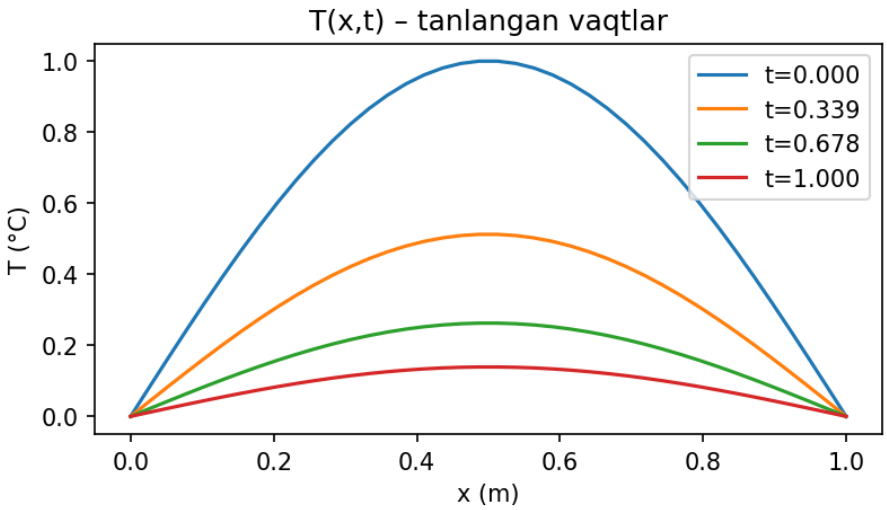
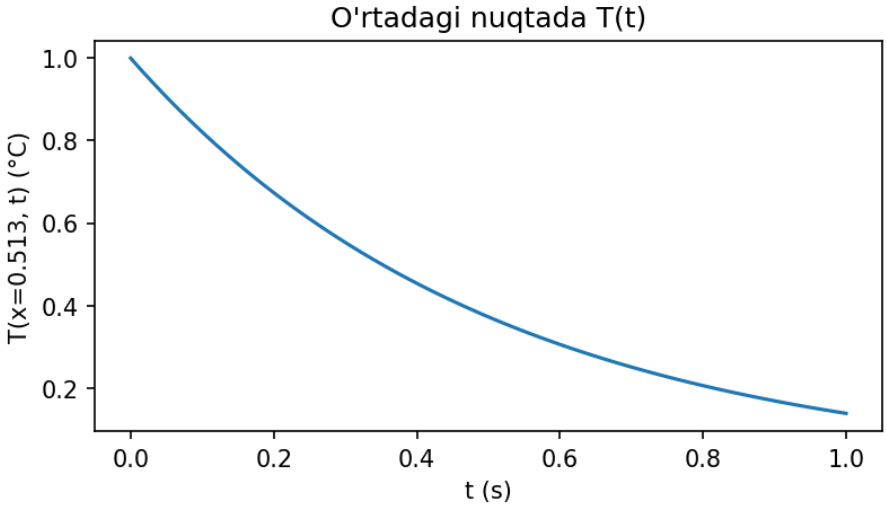
Parametrlar:

- L (m): 1
- α (m²/s): 0.2
- nx: 40
- tmax (s): 1
- nt: 60
- T_left: 0
- T_right: 0
- IC turi: sine





Xulosa:

Berilgan 1D issiqlik tenglamasi ∂T/∂t = α ∂²T/∂x² (α = 0.2 m²/s) uchun diskret modelda nx=40, nt=60, L=1.0 m, tmax=1.0 s parametrlari bilan hisoblar olib borildi. Boshlang‘ich shart: sine (amp=1.0, x■=0.35, σ=0.08). Chegaralar: T(0,t)=0.0 °C, T(L,t)=0.0 °C. Natijaga ko‘ra T_max=0.999 °C, T_min=0.000 °C, T_ort=0.272 °C. O‘rtacha nuqtada T(t=0)=0.999 °C, T(t=1.0)=0.139 °C. Diffuziya vaqti taxminan t_diff≈0.507 s, ya‘ni tizim muvozanatga yaqinlashish vaqti shu bilan aniqlanadi. Model natijalari fizik ma’qul va kutilgan eksponensial