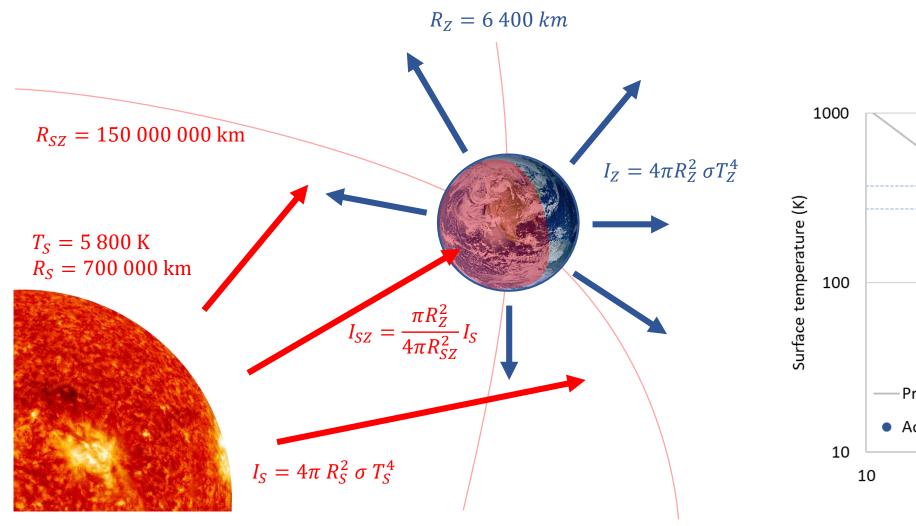
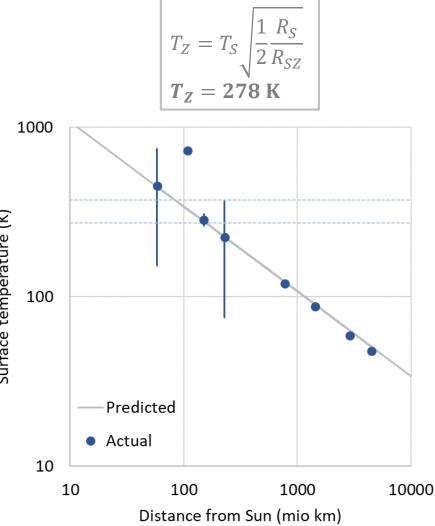
We are here



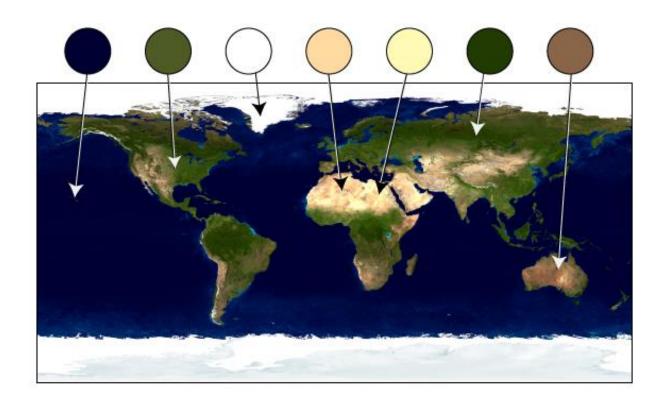


## Temperatura na Zemlji

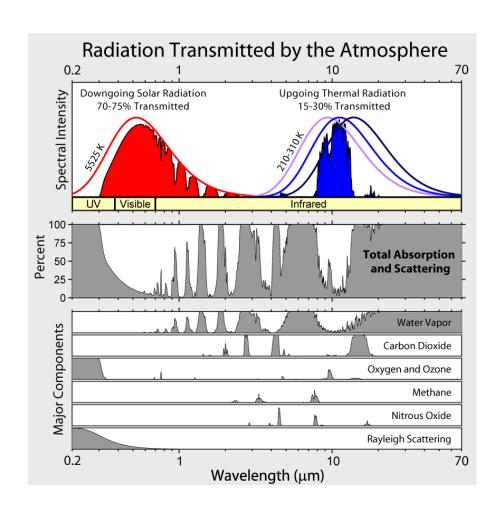


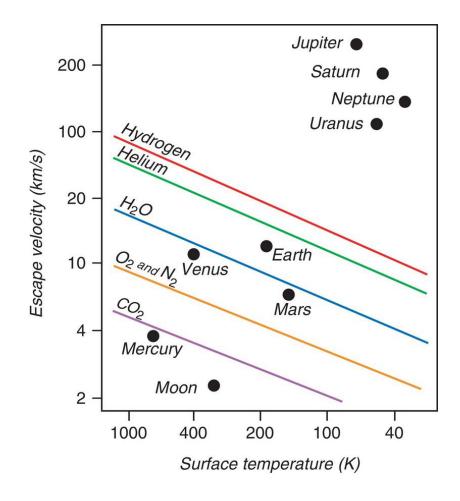


## Ostali vplivi na temperaturo na Zemlji

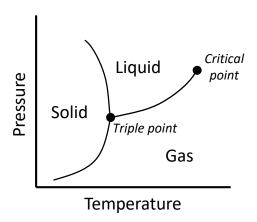


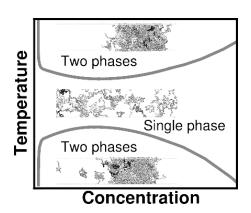
## Ostali vplivi na temperaturo na Zemlji

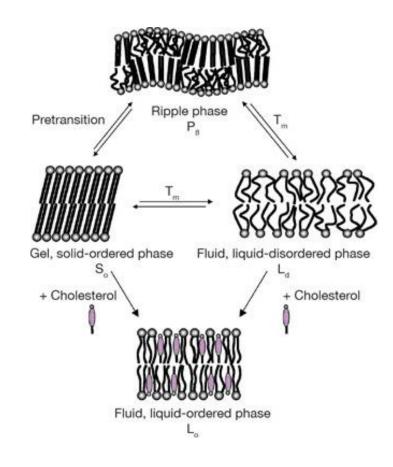


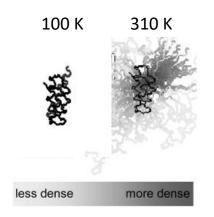


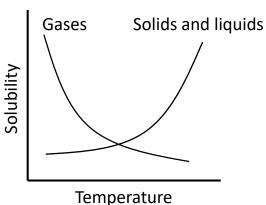
## Temperatura vpliva na molekularna stanja



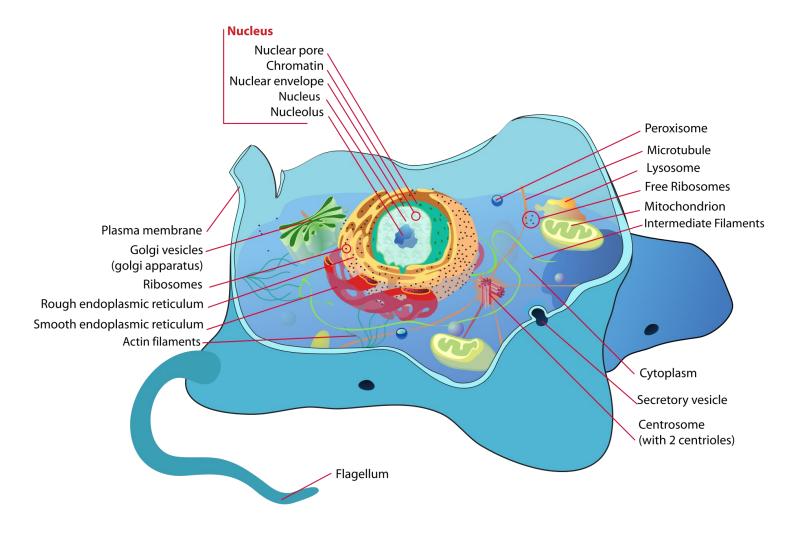


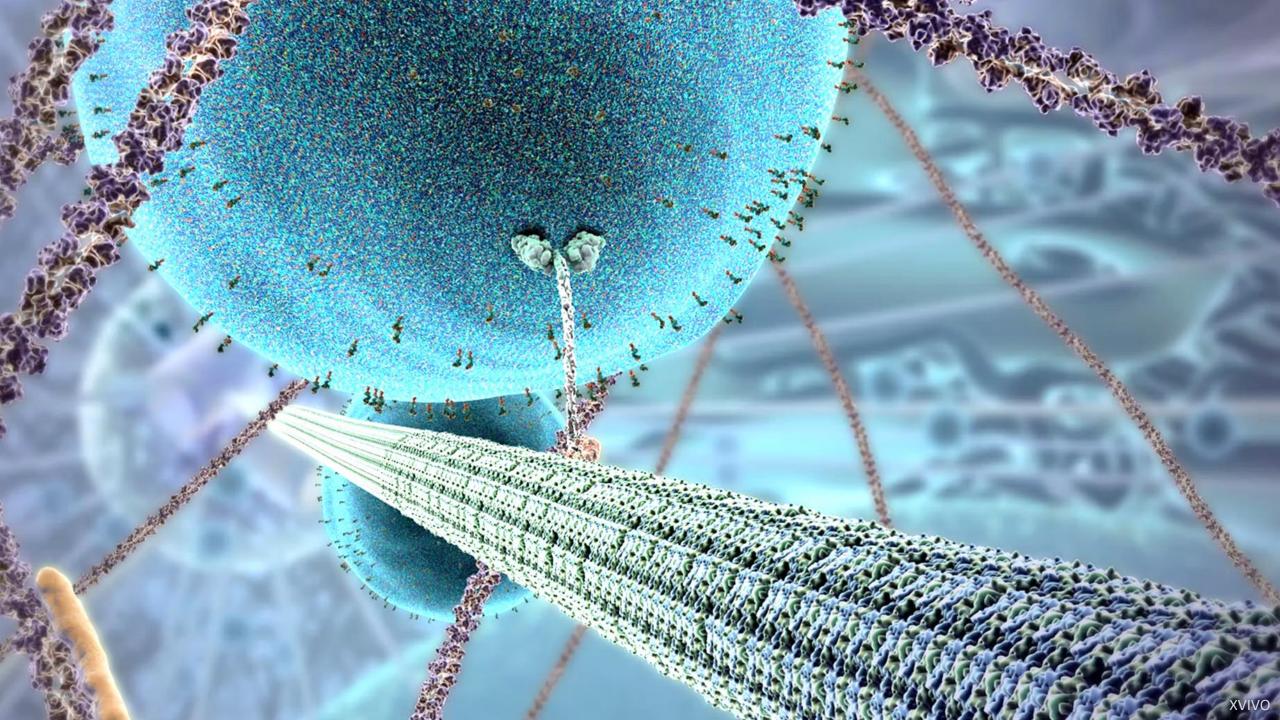






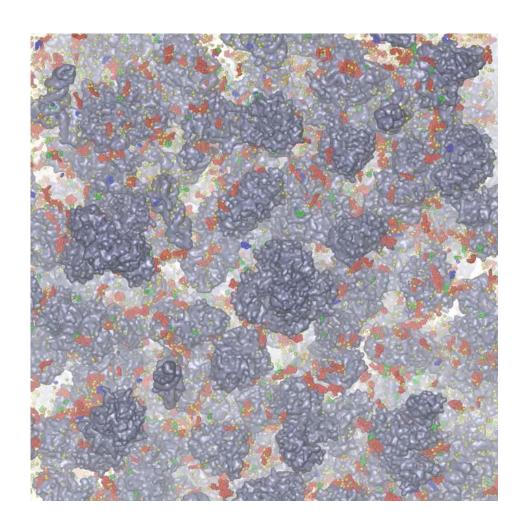
#### Od molekul do žive celice

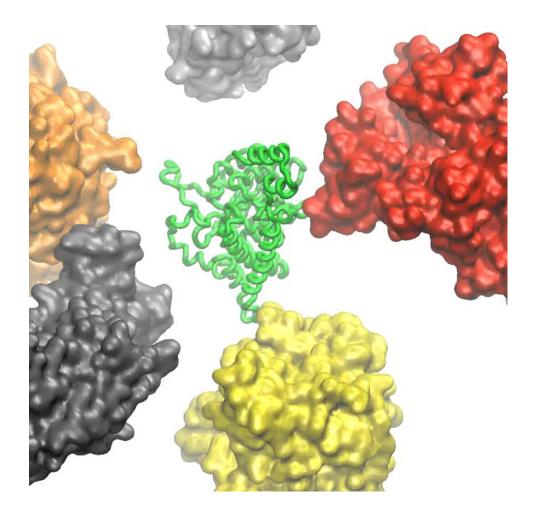




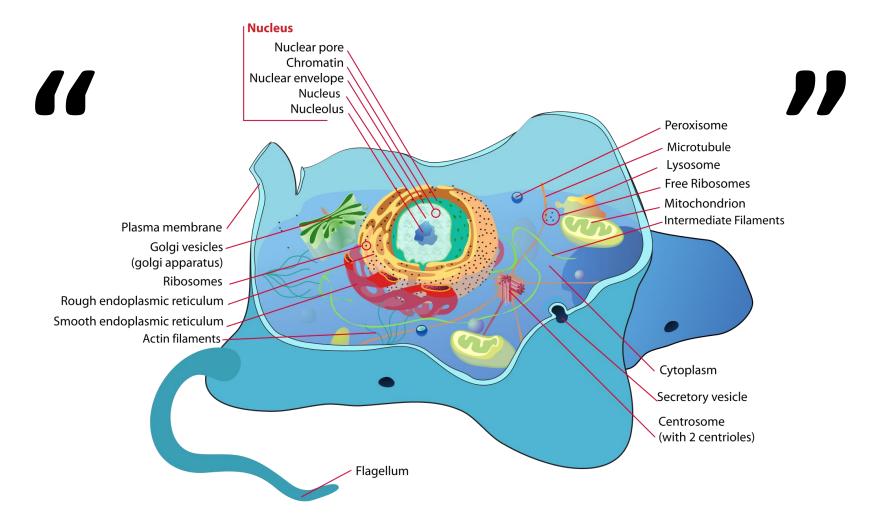


# Na molekularni skali nič ni pri miru





## Kako deluje celica?





## Cilji molekularne biofizike

Metode za preučevanje molekularnega sveta

Medmolekulske interakcije

Funkcije molekul v celici, obnašanje molekul v laboratoriju

Struktura & dinamika molekul

Ravnovesja stanj, tokovi

#### Molekularna biofizika

#### **PREDAVANJA**

- Voda, gradniki
- Medmolekulske interakcije
- Termodinamika
- Zaznava specifičnih interakcij
- Samoorganizacija in strukture
- Metode za merjenje razdalj na molekularnem nivoju
- Površinski pojavi
- Gibljivost
- Dinamika znotraj molekul, optične spektroskopije
- Dinamika (supra)molekularnih sistemov
- Membranski potencial

#### **VAJE**

- Velikost gradnikov
- Interakcije
- Termodinamika
- Samoorganizacija hidrofobna interakcija, membrane
- Samoorganizacija DNA, proteini
- Površinski pojavi
- Gibljivost
- Membranski potencial
- Dinamika in spektroskopije

#### SEMINARSKE VAJE (udeležba obvezna)

• V Laboratoriju za biofiziko, IJS

#### Molekularna biofizika

- Predavanja in vaje (P2/FFA sreda, 15.00–18.00):
   doc. dr. Iztok Urbančič
   Institut Jožef Stefan (IJS), Odsek za fiziko trdne snovi, Laboratorij za biofiziko (LBF)
- Seminarske vaje (LBF/IJS 1x, termin po dogovoru):
   + kolegi LBF
- Info o predmetu: <u>https://lbf.ijs.si/teaching/biofizika</u>
- Vprašanja, konzultacije: iztok.urbancic@ijs.si

#### Literatura

- T. A. Waigh

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  (Willey, Chicester, 2007)
- R. Glaser
   Biophysics
   (Springer, Berlin, 2005)
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   Methods in Molecular Biophysics Structure, Dynamics, Function
   (Cambridge University Press, Cambridge, 2007)
- C. Niemeyer
   Nanobiotechnology Concepts, Applications and Perspectives
   (Wiley-VCH, Weinheim, 2004)
- P. J. Sinko
   *Martin's Physical Pharmacy and Pharmaceutical Sciences* (Lippincott Wlliams & Wilkins, Baltimore, 2006)
- M. M. Amiji
   Applied Physical Pharmacy
   (McGraw-Hill, New York, 2003)

## Preverjanje znanja

Pisni izpit:
 preverjanje razumevanja snovi predavanj, vaj in seminarskih vaj

 Ustni izpit: zagovor pisnega izpita