

# ASTRONOMIJA – FORMULE

Gimnazija Bežigrad, 24. 11. 2018

## Matematika

$$o = 2\pi r$$

$$S = 4\pi r^2$$

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$$V = \frac{4\pi r^3}{3}$$

## Optika

$$\frac{1}{f} = \frac{1}{a} + \frac{1}{b}$$

$$P = \frac{f_{obj}}{f_{ok}}$$

$$\varphi = \frac{1,22 \lambda}{D} \approx \frac{\lambda}{D}$$

$$P_{lin} = \frac{h_s}{h_p}$$

$$P = \frac{\tan \beta}{\tan \alpha}$$

## Sevanje, sij, izsev

$$\frac{j_1}{j_2} = 10^{-0,4(m_1 - m_2)}$$

$$j = \sigma T^4$$

$$\lambda T = k_W = 2,9 \cdot 10^{-3} mK$$

$$m_1 - m_2 = -2,5 \log \frac{j_1}{j_2}$$

$$j = \frac{P}{S}$$

$$m - M = 5 \log \frac{r}{10pc}$$

$$P = S\sigma T^4$$

## Valovanje, svetloba

$$c = \lambda \nu$$

$$W = E = mc^2$$

$$W_f = h\nu$$

## Gravitacija

$$F_g = \frac{GMm}{r^2}$$

$$g = \frac{GM}{r^2}$$

$$v_1 = \sqrt{\frac{GM}{r}}$$

$$W_p = -\frac{GMm}{r}$$

$$\frac{a^3}{t^2} = \frac{G(M+m)}{4\pi^2}$$

$$\varepsilon = \frac{e}{a}$$

$$\frac{1}{t_0} - \frac{1}{t_{sid}} = \frac{1}{t_{sin}} \text{ (zunanji)}$$

$$a_r = \frac{v^2}{r}$$

$$g = g_0 \left(\frac{r_0}{r}\right)^2$$

$$v_2 = \sqrt{\frac{2GM}{r}}$$

$$W_{potna} = W_k + W_p$$

$$\frac{a^3}{t^2} \approx \frac{GM}{4\pi^2}$$

$$\varepsilon = \sqrt{a^2 - b^2}$$

$$\frac{1}{t_{sid}} - \frac{1}{t_0} = \frac{1}{t_{sin}} \text{ (notranji in Luna)}$$

$$g = \frac{GM}{r^2}$$

$$r_{Sch} = \frac{2GM}{c^2}$$

$$W_p = -2W_k$$

$$r_1 v_1 = r_2 v_2$$

$$\tan \varphi = \frac{1 a. e.}{d} \quad d = \frac{1}{p}$$

## Plinska enačba

$$pV = nRT$$

$$n = \frac{m}{M} = \frac{N}{N_A}$$

$$\overline{W_{k1}} = \frac{3}{2} kT$$

## Kozmologija

$$v = H_0 d$$

$$\frac{\Delta \lambda}{\lambda} = \frac{v}{c}$$

$$z = \frac{\Delta \lambda}{\lambda}$$

$$\frac{\Delta \lambda}{\lambda} = \sqrt{\frac{1 + \frac{v}{c}}{1 - \frac{v}{c}}} - 1$$