Palacký University Olomouc Faculty of Science Joint Laboratory of Optics

BACHELOR THESIS

Calibration and monitoring of astroparticle telescopes



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Supervisor: Ing. Ladislav Chytka, Ph.D.

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DECLARATION										
I hereby declare that I elaborated this bachelor thesis independently under the supervision of Ing. Ladislav Chytka, Ph.D., using only information sources referred in the Literature chapter.										
In Olomouc August 20, 2021										
Daniel Staník										

Bibliografická identifikace

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Klíčová slova klíčové slovo 1, klíčové slovo 2, ...

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Abstract Lorem ipsum dolor sit amet, consectetur

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$\mathbf{\acute{U}vod}$

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Chapter 1

Název kapitoly

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1.1 Název podkapitoly

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(1.1)

Podle rovnice (1.1), jak je uvedeno v [1].

1.2 Název další podkapitoly

Další příklady matematické sazby:

$$a_1 = b_1 + c_1 \tag{1.2}$$

$$a_2 = b_2 + c_2 - d_2 + e_2 \tag{1.3}$$

. . .

$$a_{11} = b_{11} a_{12} = b_{12} (1.4)$$

$$a_{21} = b_{21} a_{22} = b_{22} + c_{22} (1.5)$$

. . .

$$a = b + c \tag{1.6}$$

. . .

$$a = b + c \tag{1.7a}$$

$$d = e + f + g \tag{1.7b}$$

$$h = i + j \tag{1.7c}$$

...z rovnice (1.7a)

 $A_{\infty} + \pi A_0 \sim \mathbf{A}_{\infty} + \pi \mathbf{A_0} \sim \mathbf{A}_{\infty} + \pi \mathbf{A_0}$

. . .

$$\begin{pmatrix} \alpha & \beta^* \\ \gamma^* & \delta \end{pmatrix} \qquad P_{r-j} = \begin{cases} 0 & \text{když } r - j \text{ je liché,} \\ r! \, (-1)^{(r-j)/2} & \text{když } r - j \text{ je sudé.} \end{cases}$$

. . .

$$\Re z = \frac{n\pi \frac{\theta + \psi}{2}}{\left(\frac{\theta + \psi}{2}\right)^2 + \left(\frac{1}{2}\log\left|\frac{B}{A}\right|\right)^2}.$$
(1.8)

Závěr

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Bibliography

[1] MISNER, Ch. W.; THORNE, K. S.; WHEELER, J. A. *Gravitation*. San Francisco: W. Freeman, 1973.

Preferované jsou citace podle norem ČSN ISO 690 a ISO 690-2, popř. styly APS (American Physical Society – u prací zaměřených fyzikálně) nebo APA (American Psychological Association – u prací zaměřených více didakticky a pedagogicky).