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ERRATA

Light propagation in weakly guiding optical fibres. A Laplace-transform approach

G. PAIANO

Dipartimento di Fisica, Università di Bari - Bari, Italy
INFN, Sezione di Bari - Bari, Italy

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PACS 04.40 – Continuous media; electromagnetic and other mixed gravitational systems.
PACS 02.30.Qy – Integral transforms and operational calculus.
PACS 42.25.Bs – Wave propagation, transmission and absorption.
PACS 99.10 – Errata.

On p. 705, a factor 1/2 was erroneously inserted in the refraction index profile. Formula (3) must read

$$f(r) = 1 - \operatorname{sech}^2 \frac{r}{\varrho} = 1 - \frac{1}{(\exp[r/\varrho] + \exp[-r/\varrho])^2}. \tag{3}$$

Subsequent formulas must accordingly be corrected. From (6) onwards they take the right form by replacing V with $2V$ and V^2 with $4V^2$. We note, in particular,

i) Formula (10) for the basic differential equation:

$$\frac{\mathrm{d}^2 u}{\mathrm{d}R^2} + \frac{2\nu + 1}{R}\frac{\mathrm{d}u}{\mathrm{d}R} + (-W^2 + V^2 \operatorname{sech}^2 R)\, u = 0. \tag{10}$$

(ii) The recurrence relation (29), useful in view of future work:

$$(2n+2)^2 a_{2n+2} + 2\nu(2n+2)\, a_{2n+2} - W^2 a_{2n} + V^2 \beta_{2n} = 0. \tag{29}$$

(iii) The result (34) for cut-off frequencies:

$$\text{cut-off frequency of the } LP_{\nu 1} \text{ mode} = (2\nu)^{1/2} \tag{34}$$

which modifies accordingly table I.

(iv) Formulas (35) and (36) for the eigenvalues W:

$$\frac{4V^2 - W^2}{(W+2)^2} - \frac{W^2}{(W+4)^2} = 1, \tag{35}$$

$$W = 2V - 2 = 2(V-1) \qquad (V > 1). \tag{36}$$

Whereas cut-off frequencies compare still less favourably with the exact numerical values, the eigenvalue reproduces up to a factor two the result of Snyder and Sammut quoted in the paper and has the same «validity threshold» at $V = 1$.