

SHORT COMMUNICATION

ON THE SIGN OF $Z_{\ell mn}(\xi)$

PETER R. MORRIS and DAVID C. KOSKENMAKI
Research and Technology, Armco Steel Corporation,
Middletown, Ohio 45043, USA

(Received April 15, 1977)

In the Appendix of his paper, Roe¹ indicated a method for derivation of the augmented (normalized) Jacobi polynomials $Z_{\ell mn}(\xi)$. He adopted the convention

$$Z_{\ell mn} = (-1)^{m+n} Z_{\ell nm},$$

from which it follows that

$$Z_{\ell mn} = (-1)^{m+n} Z_{\ell \bar{m} \bar{n}}, \text{ and}$$

$$P_{\ell}^m(\xi) = (-1)^m P_{\ell}^{\bar{m}}(\xi).$$

Morris and Heckler² showed that

$$Z_{\ell m \bar{n}}(\xi) = Z_{\ell mn}(-\xi) = Z_{\ell \bar{m} n}(\xi)$$

for even ℓ, m, n . For the above convention, satisfaction of Roe's Eq. (11) requires

$$Z_{\ell m \bar{n}}(\xi) = (-1)^{\ell+m} Z_{\ell mn}(-\xi), \text{ and}$$

$$Z_{\ell \bar{m} n}(\xi) = (-1)^{\ell+n} Z_{\ell mn}(-\xi).$$

These relations are offered without proof, but have been tested arithmetically in Roe's Eq. (11) with $m = -\ell, -\ell+1, \dots, \ell$ for several values of ℓ .

REFERENCES

1. R. J. Roe, *J. Appl. Phys.*, 36, 2024 (1965).
2. P. R. Morris and A. J. Heckler, *Adv. in X-ray Analysis*, 11, 454 (1968).