Ivan Toftul

Introduction

Results

Second

Conclusion

References

Extra slides

Long title

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Introduction



Introduction

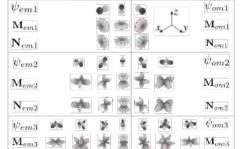
Results
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Extra slides

- ► One
- ► Two



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3

Spherical multipoles

 N_{om3}

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Second slide in introduction



Introduction

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$$\int \mathrm{d}x f(x)$$



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Extra slides

From¹ we have

 $\sin(x) \approx x$

Example

For x = 0.1 we have

sin(0.1) = 0.09983341664682815

¹M. E. Muldoon, A. A. Ungar, *Math. Mag.* **69**, 3–14, ISSN: 0025-570X (Feb. 1996).

Second slide with results



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$$\sin(x) \approx x + \frac{x^3}{3!}$$

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Conclusions



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- 1. One
- 2. Two

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M. E. Muldoon, A. A. Ungar, Math. Mag. 69, 3-14, ISSN: 0025-570X (Feb. 1996).

$\hat{\chi}^{(2)}_{\rm 2D\ TMDC}$ tensor in cylindrical coordinates



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$$\chi^{(2)}_{\{\ell nm\}_{\rm cyl}} = R_{\ell i}^{-1} R_{nj}^{-1} R_{mk}^{-1} \chi^{(2)}_{\{ijk\}_{\rm cart}}, \qquad R^{-1}(\varphi) = \begin{pmatrix} \cos(\varphi) & \sin(\varphi) & 0 \\ -\sin(\varphi) & \cos(\varphi) & 0 \\ 0 & 0 & 1 \end{pmatrix}$$

$$\begin{split} \chi^{(2)}_{\text{2D TMDC}} &= \check{\chi}_{\text{2D}}^{\text{TMDC}} \left[\begin{bmatrix} 0 & -1 & 0 \\ -1 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix} \begin{bmatrix} -1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix} \begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix} \right]_{(\hat{x}\hat{y}\hat{z})} \\ &= \check{\chi}_{\text{2D}}^{\text{TMDC}} \left[\begin{bmatrix} -\sin(3\varphi) & -\cos(3\varphi) & 0 \\ -\cos(3\varphi) & \sin(3\varphi) & 0 \\ 0 & 0 & 0 \end{bmatrix} \begin{bmatrix} -\cos(3\varphi) & \sin(3\varphi) & 0 \\ \sin(3\varphi) & \cos(3\varphi) & 0 \\ 0 & 0 & 0 \end{bmatrix} \begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix} \right]_{(\hat{t}, \hat{\varphi}, \hat{z})} \\ &= \check{\chi}_{\text{2D}}^{\text{TMDC}} \left[\frac{1}{2} e^{-3i\varphi} \left(\hat{\varphi}\hat{\varphi}\hat{\varphi} + i\hat{\varphi}\hat{\varphi}\hat{r} + i\hat{\varphi}\hat{r}\hat{\varphi} - \hat{\varphi}\hat{r}\hat{r} + i\hat{r}\hat{\varphi}\hat{\varphi} - \hat{r}\hat{\varphi}\hat{r} - i\hat{r}\hat{r}\hat{\varphi} - i\hat{r}\hat{r}\hat{r} \right) \\ &+ \frac{1}{2} e^{+3i\varphi} \left(\hat{\varphi}\hat{\varphi}\hat{\varphi} - i\hat{\varphi}\hat{\varphi}\hat{r} - i\hat{\varphi}\hat{r}\hat{\varphi} - \hat{\varphi}\hat{r}\hat{r} - i\hat{r}\hat{\varphi}\hat{\varphi} - \hat{r}\hat{\varphi}\hat{r} - \hat{r}\hat{r}\hat{\varphi} + i\hat{r}\hat{r}\hat{r} \right) \end{bmatrix} \end{split}$$