SUPPLEMENTARY MATERIAL (APPENDICES)

MODEL SOLVING FOR THE GENERALISED HYBRID MODEL OF DIFFERENCE ANALYSIS AND DYNAMIC WEIGHTS

The models presented in the appendices herein, represent the solved solutions of the generalised models as presented in the main manuscript. While Appendix A represents the off-Edge cutting combinations i.e. points $g(\mathrm{a},\mathrm{b},\mathrm{c})$ on the difference analysis mesh diagram whose position aren't on the edges or vertices of the mesh rather within the body of the planes, Appendix B represents the on-edge cutting combinations i.e. points $g(\mathrm{a},\mathrm{b},\mathrm{c})$ located on the edges and or vertices of the mesh diagram as presented in the manuscript.

APPENDIX A

Predictive Model for the Off-Edge Cutting Combinations (Off-ECC)

$$a_1b_2c_2{}^{(n+1)} = \left[\frac{1}{6} * \left(a_2b_2c_2{}^{(n+1)} + a_1b_1c_2{}^{(n)} + a_1b_3c_2{}^{(n+1)} + a_1b_2c_1{}^{(n)} + a_1b_2c_3{}^{(n+1)}\right)\right] * w_{nn} \tag{A1}$$

$$a_2b_1c_2{}^{(n+1)} = \left[\frac{1}{6} * \left(a_1b_1c_2{}^{(n)} + a_3b_1c_2{}^{(n+1)} + a_2b_2c_2{}^{(n+1)} + a_2b_1c_1{}^{(n)} + a_2b_1c_3{}^{(n+1)}\right)\right] * w_{nn} \tag{A2}$$

$$a_2b_2c_1{}^{(n+1)} = \left[\frac{1}{6} * \left(a_1b_2c_1{}^{(n)} + a_3b_2c_1{}^{(n+1)} + a_2b_1c_1{}^{(n)} + a_2b_3c_1{}^{(n+1)} + a_2b_2c_2{}^{(n+1)}\right)\right] * w_{nn} \tag{A3}$$

$$a_2b_2c_2{}^{(n+1)} = \left[\frac{1}{6} * \left(a_1b_2c_2{}^{(n)} + a_3b_2c_2{}^{(n+1)} + a_2b_1c_2{}^{(n)} + a_2b_3c_2{}^{(n+1)} + a_2b_2c_1{}^{(n)} + a_2b_2c_3{}^{(n+1)}\right)\right] * w_{nn} \tag{A4}$$

$$a_2b_2c_3{}^{(n+1)} = \left[\frac{1}{6} * \left(a_1b_2c_3{}^{(n)} + a_3b_2c_3{}^{(n+1)} + a_2b_1c_3{}^{(n)} + a_2b_3c_3{}^{(n+1)} + a_2b_2c_2{}^{(n)}\right)\right] * w_{nn} \tag{A5}$$

$$a_2b_3c_2{}^{(n+1)} = \left[\frac{1}{6} * \left(a_1b_3c_2{}^{(n)} + a_3b_3c_2{}^{(n+1)} + a_2b_2c_2{}^{(n)} + a_2b_3c_1{}^{(n)} + a_2b_3c_3{}^{(n+1)}\right)\right] * w_{nn} \tag{A6}$$

$$a_3b_2c_2{}^{(n+1)} = \left[\frac{1}{6} * \left(a_2b_2c_2{}^{(n)} + a_3b_1c_2{}^{(n)} + a_3b_3c_2{}^{(n+1)} + a_3b_2c_1{}^{(n)} + a_3b_2c_3{}^{(n+1)}\right)\right] * w_{nn}$$

(A7)

APPENDIX B
Predictive Model for the On-Edge Cutting Combinations (On-ECC)

$$a_2b_1c_2s = \frac{1}{6} * (a_1b_1c_2 + a_3b_1c_2 + a_2b_1c_1 + a_2b_1c_3 + a_2b_2c_2) \quad \text{(B1)}$$

$$a_1b_2c_2s = \frac{1}{6} * (a_2b_2c_2 + a_1b_1c_2 + a_1b_3c_2 + a_1b_2c_1 + a_1b_2c_3) \quad \text{(B2)}$$

$$a_2b_2c_2ss = \frac{1}{6} * (a_1b_1c_1 + a_1b_1c_3 + a_3b_1c_1 + a_3b_1c_3 + a_1b_3c_1 + a_3b_3c_1) \quad \text{(B3)}$$

$$a_3b_2c_2s = \frac{1}{6} * (a_2b_2c_2 + a_3b_1c_2 + a_3b_3c_2 + a_3b_2c_1 + a_3b_2c_3) \quad \text{(B4)}$$

$$a_2b_2c_2sss = \frac{1}{6} * (a_1b_1c_3 + a_1b_3c_3 + a_3b_1c_3 + a_3b_3c_3 + a_1b_1c_1 + a_3b_1c_1) \quad \text{(B5)}$$

$$a_2b_2c_1s = \frac{1}{6} * (a_1b_2c_1 + a_3b_2c_1 + a_2b_1c_1 + a_2b_3c_1 + a_2b_2c_2) \quad \text{(B6)}$$

$$a_2b_2c_3s = \frac{1}{6} * (a_1b_2c_3 + a_3b_2c_3 + a_2b_1c_3 + a_2b_3c_3 + a_2b_2c_2) \quad \text{(B7)}$$

$$a_1b_1c_2 = 6 * (a_2b_1c_2s) - a_3b_1c_2 + a_2b_1c_1 + a_2b_1c_3 + a_2b_2c_2) \quad \text{(B8)}$$

$$a_2b_1c_1 = [6 * (a_2b_1c_2s) - (a_3b_1c_2 + a_1b_1c_2 + a_2b_1c_3 + a_2b_2c_2)] \quad \text{(B9)}$$

$$a_3b_1c_2 = [6 * (a_2b_1c_2s) - (a_2b_1c_1 + a_1b_1c_2 + a_2b_1c_3 + a_2b_2c_2)] \quad \text{(B10)}$$

$$a_2b_1c_3 = [6 * (a_2b_1c_2s) - (a_2b_1c_1 + a_1b_1c_2 + a_3b_1c_2 + a_2b_2c_2)] \quad \text{(B11)}$$

$$a_1b_2c_3 = [6 * (a_1b_2c_2s) - (a_1b_3c_2 + a_1b_1c_2 + a_1b_2c_1 + a_2b_2c_2)] \quad \text{(B12)}$$

$$a_1b_2c_1 = [6 * (a_1b_2c_2s) - (a_1b_3c_2 + a_1b_1c_2 + a_1b_2c_3 + a_2b_2c_2)] \quad \text{(B13)}$$

$$a_1b_3c_2 = [6 * (a_1b_2c_2s) - (a_1b_2c_1 + a_1b_1c_2 + a_1b_2c_3 + a_2b_2c_2)] \quad \text{(B14)}$$

$$a_1b_1c_1 = [6 * (a_2b_2c_2ss) - (a_1b_1c_3 + a_3b_1c_1 + a_3b_1c_3 + a_1b_3c_1 + a_3b_3c_1) \quad \text{(B15)}$$

$$a_1b_1c_3 = [6 * (a_2b_2c_2ss) - (a_1b_1c_1 + a_3b_1c_1 + a_3b_1c_3 + a_1b_3c_1 + a_3b_3c_1)] \quad \text{(B16)}$$

$$a_1b_3c_1 = [6 * (a_2b_2c_2ss) - (a_1b_1c_1 + a_3b_1c_1 + a_3b_1c_3 + a_1b_1c_3 + a_3b_3c_1) \quad \text{(B17)}$$

$$a_3b_3c_1 = [6 * (a_2b_2c_2ss) - (a_1b_1c_1 + a_3b_1c_1 + a_3b_1c_3 + a_1b_1c_3 + a_1b_3c_1)] \quad \text{(B18)}$$

$$a_3b_1c_3 = [6 * (a_2b_2c_2ss) - (a_1b_1c_1 + a_3b_1c_1 + a_3b_3c_1 + a_1b_1c_3 + a_1b_3c_1)] \quad \text{(B19)}$$

$$a_3b_1c_1 = [6 * (a_2b_2c_2ss) - (a_1b_1c_1 + a_3b_1c_3 + a_3b_3c_1 + a_1b_1c_3 + a_1b_3c_1)] \quad \text{(B20)}$$

$$a_3b_2c_1 = [6 * (a_3b_2c_2s) - (a_2b_2c_2 + a_3b_1c_2 + a_3b_3c_2 + a_3b_2c_3)] \quad \text{(B21)}$$

$$a_3b_2c_3 = [6 * (a_3b_2c_2s) - (a_2b_2c_2 + a_3b_1c_2 + a_3b_3c_2 + a_3b_2c_1)] \quad \text{(B22)}$$

$$a_3b_3c_2 = [6 * (a_3b_2c_2s) + a_2b_2c_2 + a_3b_1c_2 + a_3b_2c_3 + a_3b_2c_1) \quad \text{(B23)}$$

$$a_3b_3c_3 = [6 * (a_2b_2c_2sss) - (a_1b_1c_3 + a_1b_3c_3 + a_3b_1c_3 + a_1b_1c_1 + a_3b_1c_1) \quad \text{(B24)}$$

$$a_1b_3c_3 = [6 * (a_2b_2c_2sss) - (a_1b_1c_3 + a_3b_3c_3 + a_3b_1c_3 + a_1b_1c_1 + a_3b_1c_1)] \quad \text{(B25)}$$

$$a_2b_3c_1 = [6 * (a_2b_2c_1s) - (a_1b_2c_1 + a_3b_2c_1 + a_2b_1c_1 + a_2b_2c_2)] \quad \text{(B26)}$$

$$a_2b_3c_3 = 6 * (a_2b_2c_3s + a_1b_2c_3 + a_3b_2c_3 + a_2b_1c_3 + a_2b_2c_2) \quad \text{(B27)}$$