

Efficient solution of Poisson's equation with free boundary conditions

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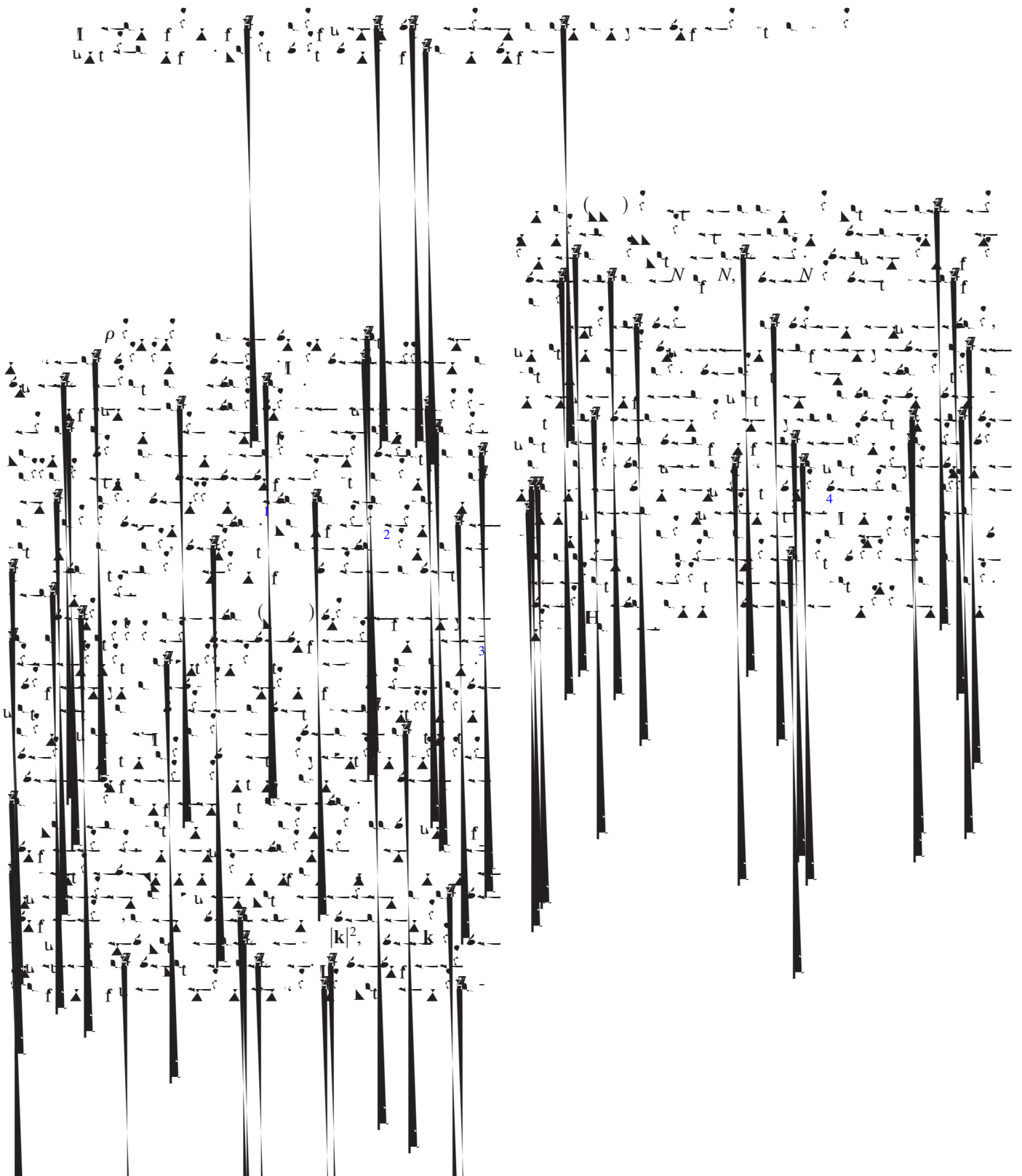
Alexey Neelov and Stefan Goedecker

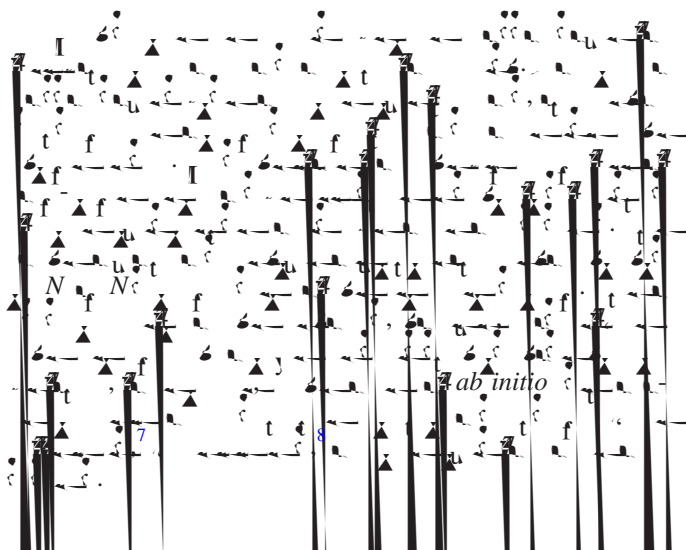
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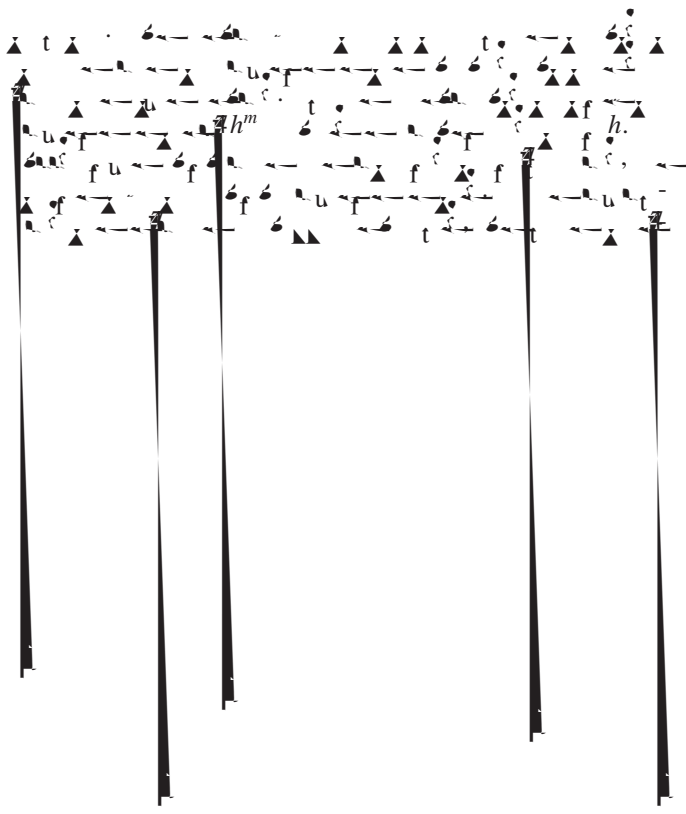


INTERPOLATING SCALING FUNCTIONS

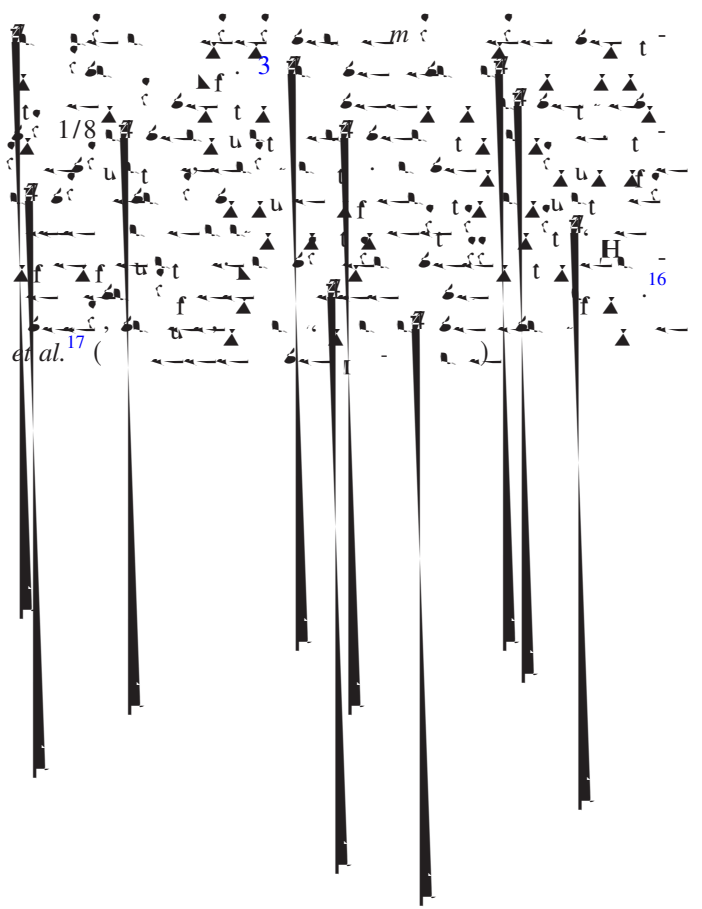


$$= V(\mathbf{r}_{j_1 j_2 j_3}), \quad \mathbf{r}_{j_1 j_2 j_3} = (x_{j_1}, y_{j_2}, z_{j_3}) \quad V_{j_1 j_2 j_3}$$

$$V_{jj}$$



Musical score system 1, featuring four staves with rhythmic notation and dynamic markings. The notation includes notes with stems and beams, and rests. Dynamic markings include *f* (forte) and *h.* (hairpins). A tempo marking *h^m* is present. The system concludes with a double bar line.



Musical score system 2, featuring four staves with rhythmic notation and dynamic markings. The notation includes notes with stems and beams, and rests. Dynamic markings include *f* (forte) and *m* (mezzo). A tempo marking *1/8* is present. A rehearsal mark *H* is indicated. The system concludes with a double bar line.

*et al.*¹⁷ ()

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APPENDIX: PROOF OF EQ. (6)

(6)

$$\rho(x) = \sum_{i_1, i_2, i_3} \rho_{i_1, i_2, i_3} \phi(x - i_1) \phi(x - i_2) \phi(x - i_3). \quad (1)$$

$$\sum_{i_1, i_2, i_3} i_1^{l_1} i_2^{l_2} i_3^{l_3} \rho_{i_1, i_2, i_3} = \int dx x^{l_1} y^{l_2} z^{l_3} \rho(\mathbf{r}) \quad 0 \leq l_1, l_2, l_3 < m. \quad (2)$$

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$$M_l = \int \phi(x) x^l dx = \delta_l, \quad l = 0, \dots, m-1. \quad (3)$$

$$\int \phi(x - j) x^l dx = \int \phi(t) (t - j)^l dt = \int \phi(t) \sum_{p=0}^l C_l^p t^p (-j)^{l-p} dt = j^l \quad (1) \quad (2)$$