

Figure 1. (a) The coordinate system is rotated by an angle θ to intersect the grid at lattice points. (b) The stencil S_j is centered at x and intersects the grid at lattice points.

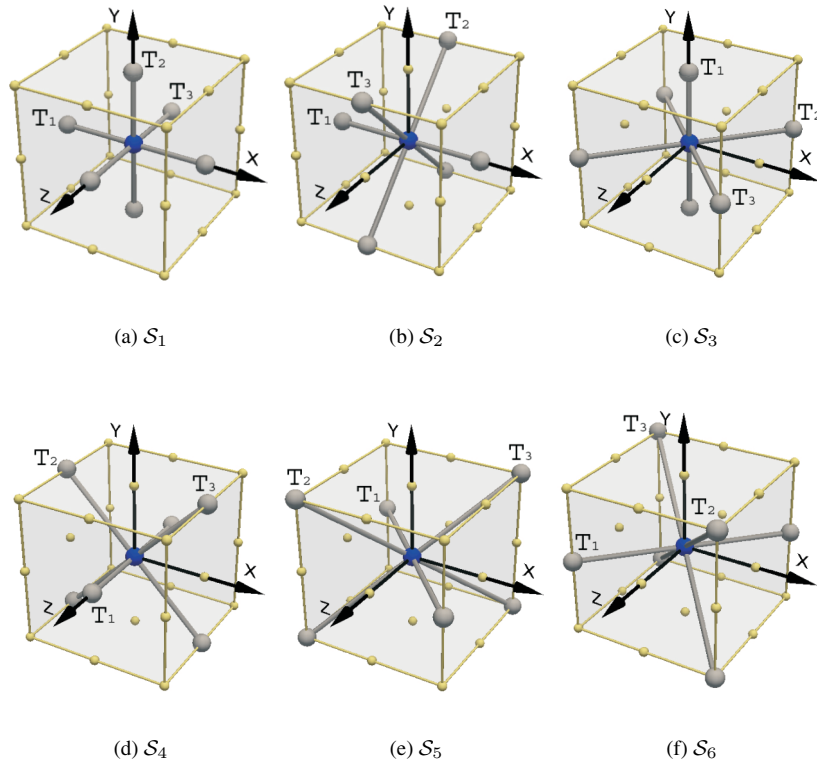
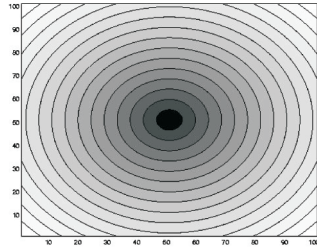
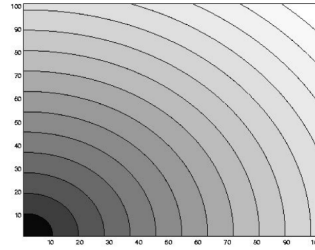


Figure 2. The proposed stencils for a 3D Cartesian domain.

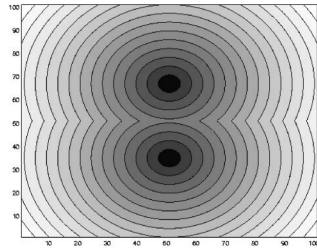
CHAPTER 8: ACCURATE TRACKING OF MONOTONICALLY ADVANCING FRONTS



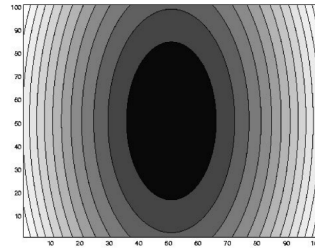
(a)



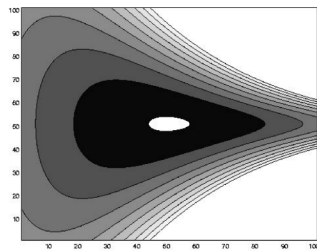
(b)



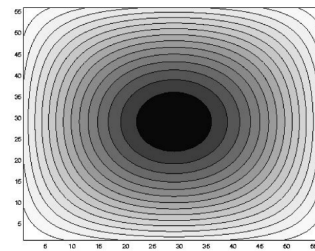
(c)



(d)

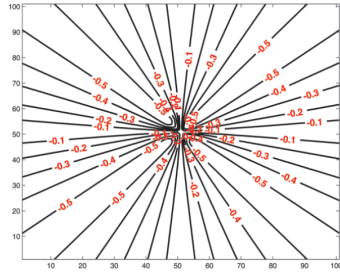


(e)

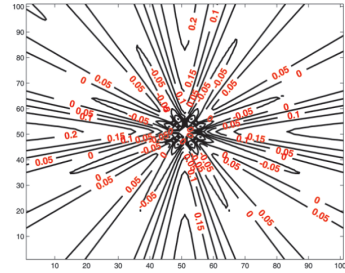


(f)

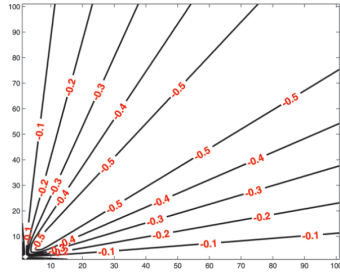
Figure 3. Iso-contours of the analytical solution of $T(\mathbf{x})$ for T_1 (a–c) at different source points. (d) T_2 , (e) T_3 , and (f) T_4 .



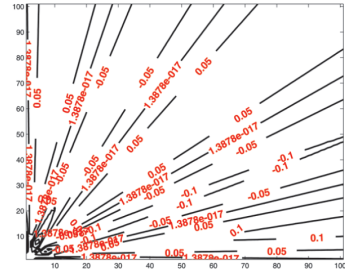
(a)



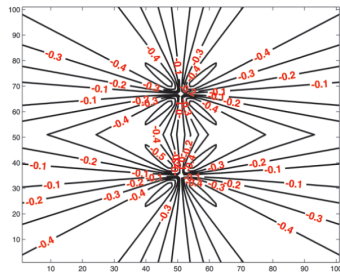
(b)



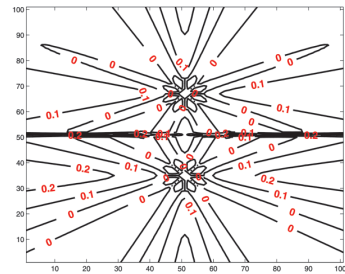
(c)



(d)

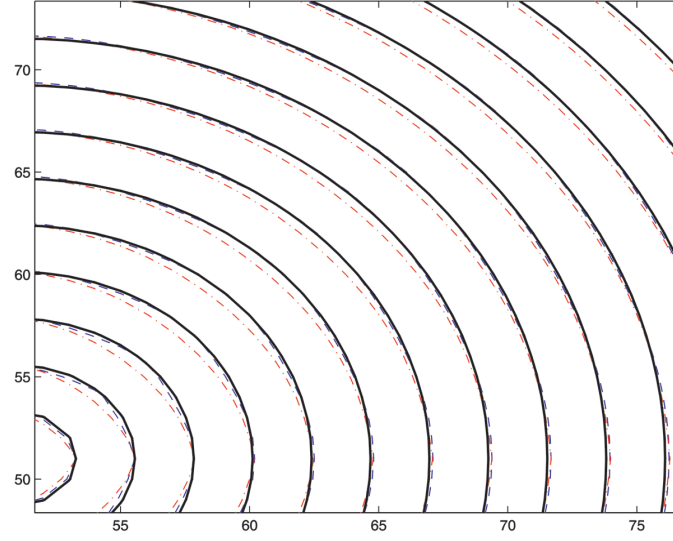


(e)

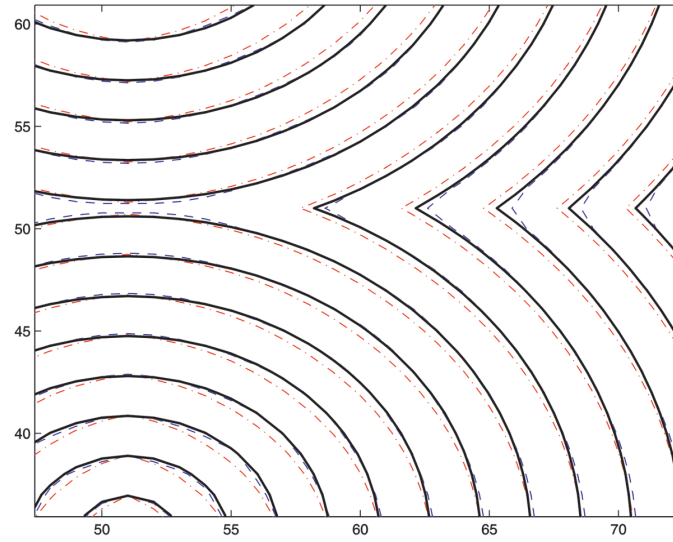


(f)

Figure 4. Iso-contours of the error curves when applying (a,c,e) FMM_2 and (b,d,f) the proposed method ($MSFM_2$).

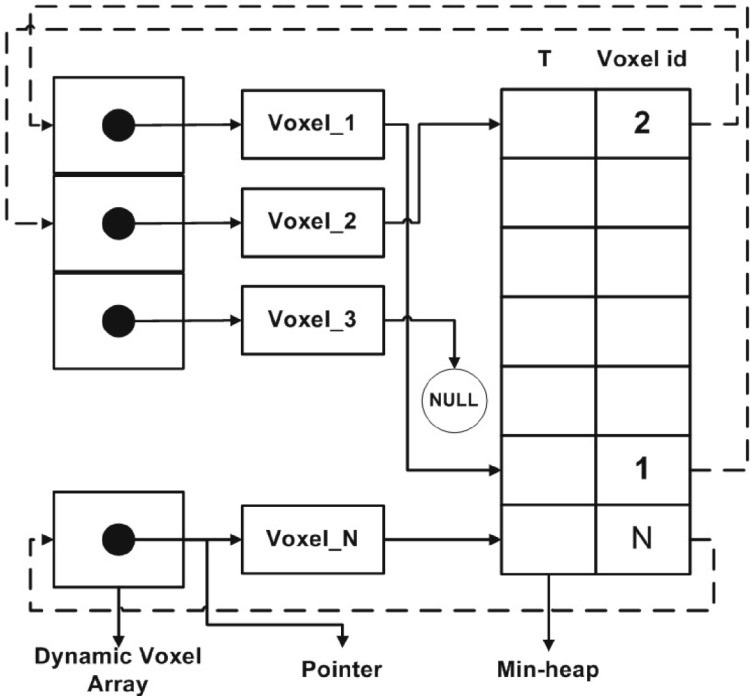


(a)



(b)

Figure 5. Iso-contours of the exact solution (solid), FMM₂ (dashed dot), and MSFM₂ (dashed) for a wave propagating from (a) one source point and (b) two source points.



(a)

Figure 6. The used data structure to achieve efficient implementing the MSFM method.