4 Numerical Simulations of Rogue Waves Solutions

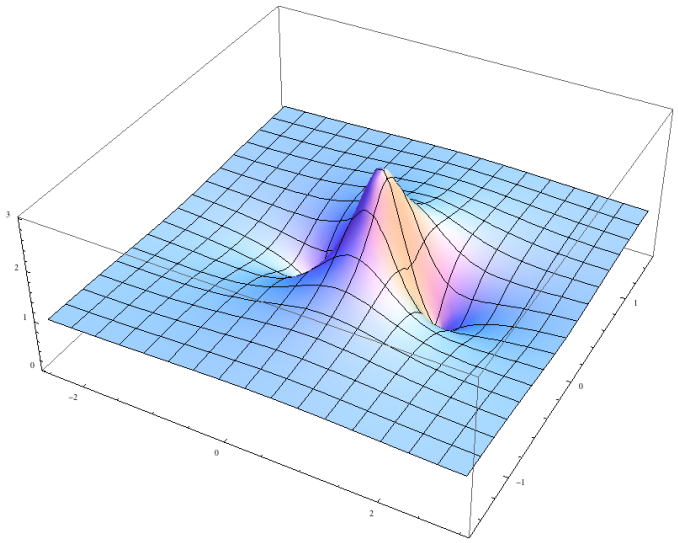

Figure 1: Mathematica plot of 1st order rogue wave solution.

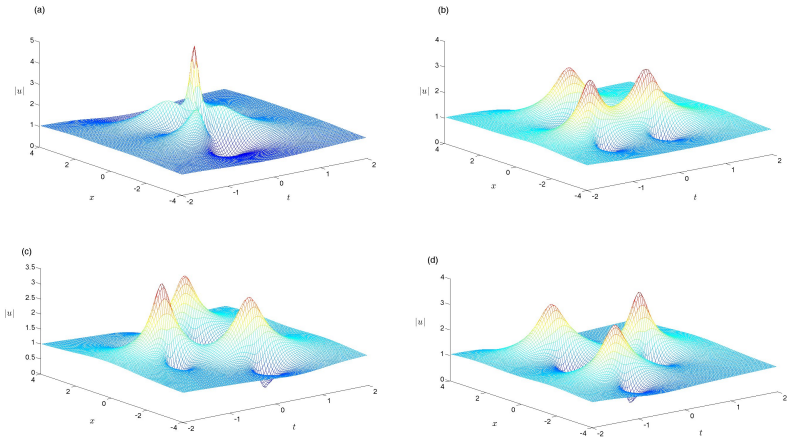

Figure 2: 2nd order wave solutions plotted in MATLAB for the following values of a_3: (a) -1/12, (b) 5/3, (c) $-5i/2$, and (d) $5i/2$.

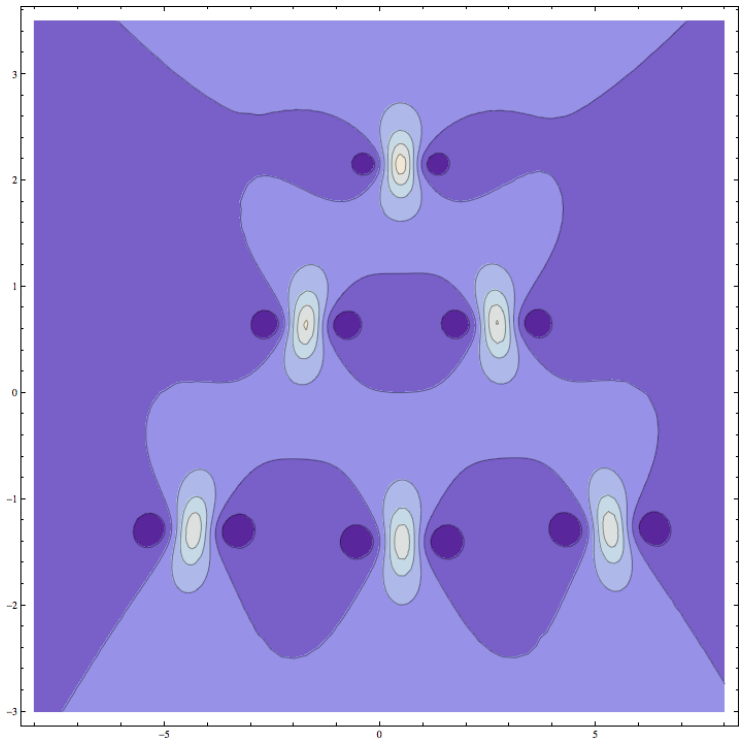

Figure 3: Mathematica contour plot of 3rd order solution for $(a_3, a_5) = (25i/3, 0)$ showing 6 intensity humps.

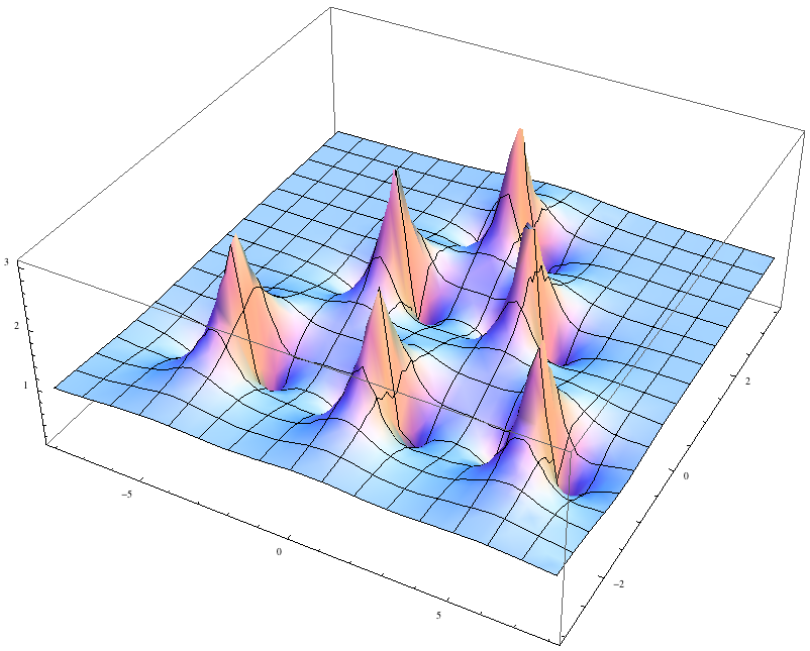

Figure 4: Mathematica plot of 3rd order solution for $(a_3, a_5) = (25i/3, 0)$.

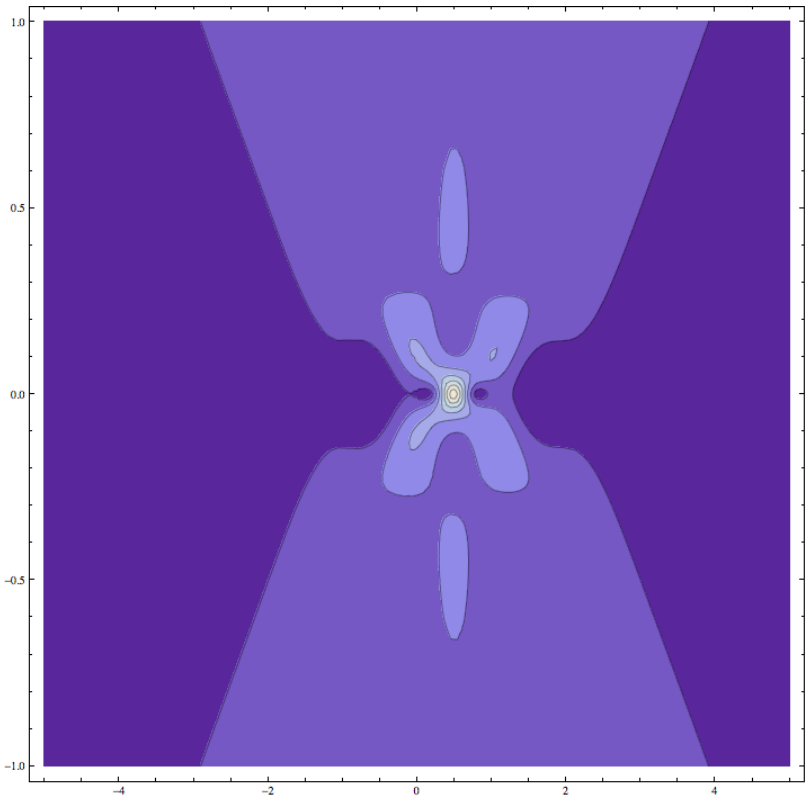

Figure 5: Mathematica contour plot of 3rd order solution for $(a_3, a_5) = (-1/12, -1/240)$ which achieves a maximum amplitude of 9 at $(x, t) = (1/2, 0)$.

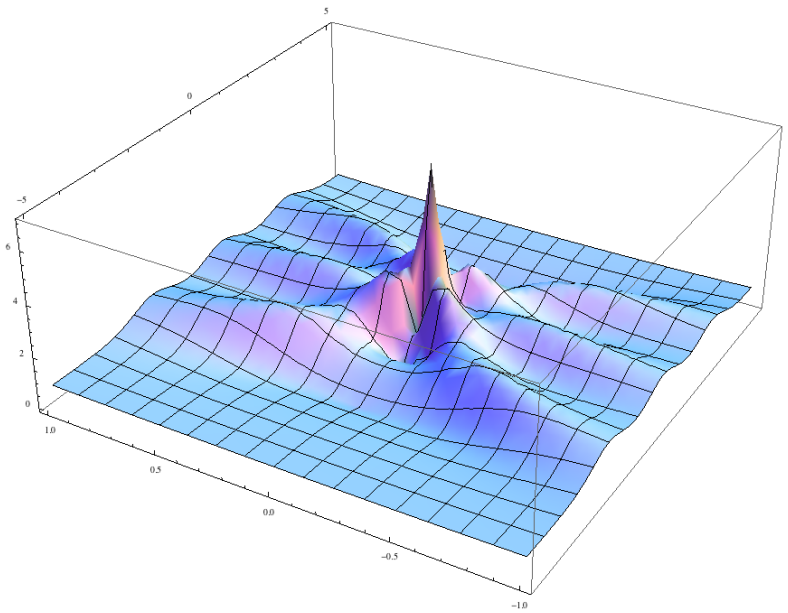

Figure 6: Mathematica plot of 3rd order solution for $(a_3, a_5) = (-1/12, -1/240)$.

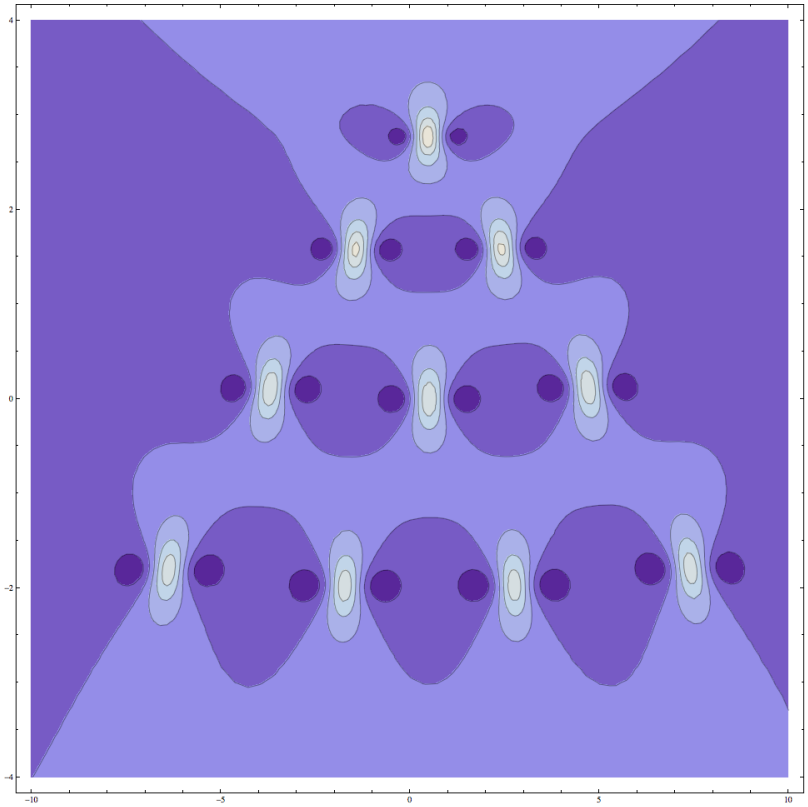

Figure 7: Mathematica contour plot of 4rd order solution for $(a_3, a_5, a_7) = (25i/3, 0, 0)$ showing 10 intensity humps.

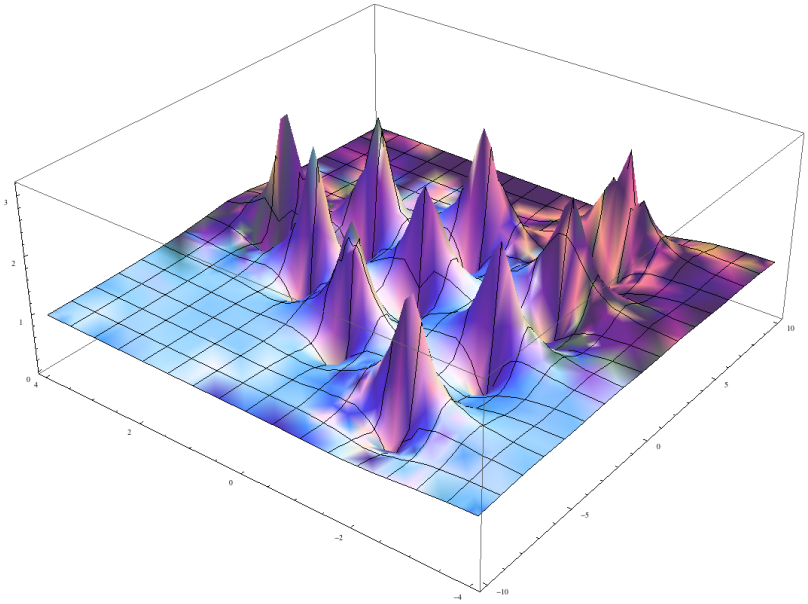

Figure 8: Mathematica plot of 4rd order solution for $(a_3, a_5, a_7) = (25i/3, 0, 0)$.

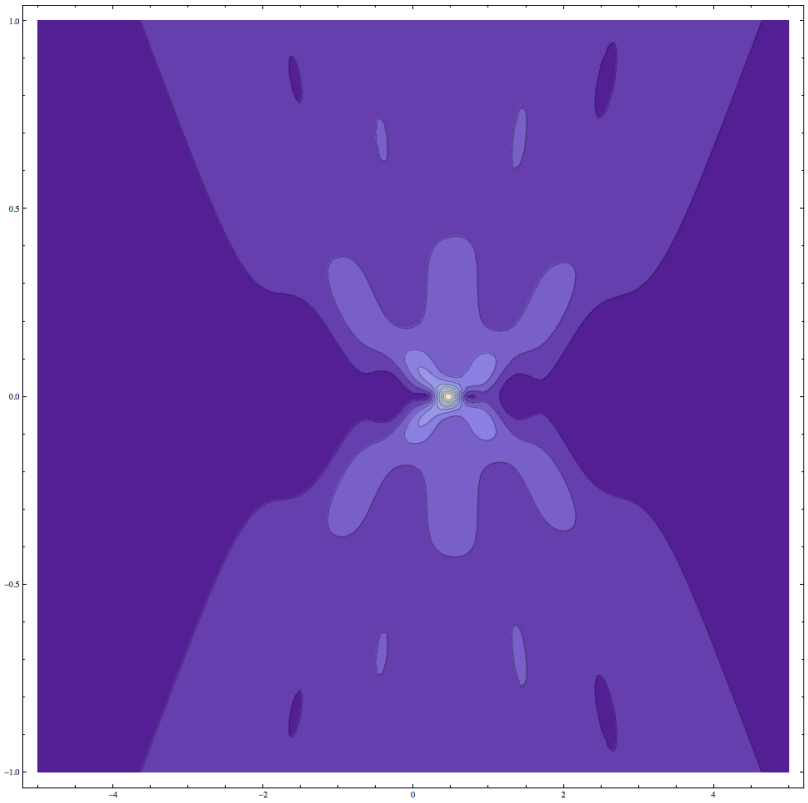

Figure 9: Mathematica contour plot of 4rd order solution for $(a_3, a_5, a_7) = (-1/12, -1/240, 0)$, which achieves a maximum amplitudeof 9 also at $(1/2, 0)$.

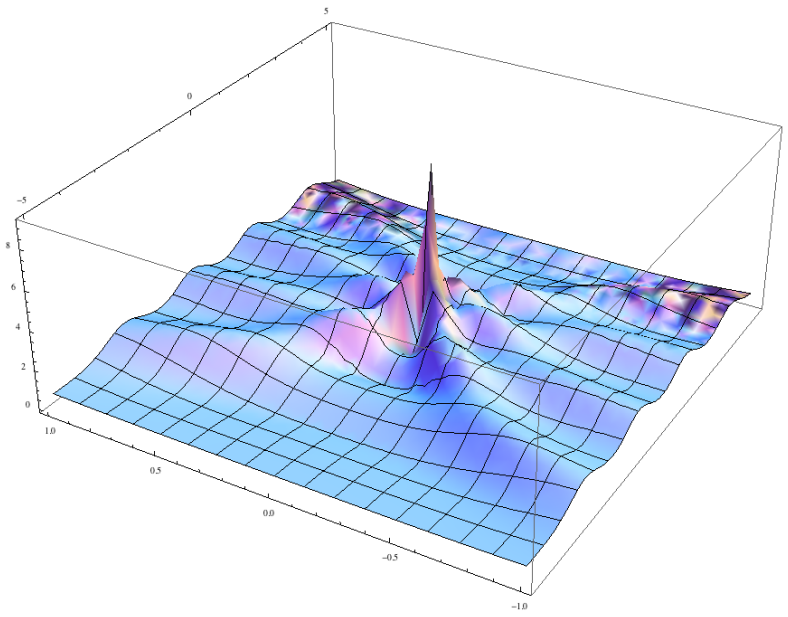

Figure 10: Mathematica plot of 4rd order solution for $(a_3, a_5, a_7) = (-1/12, -1/240, 0)$.

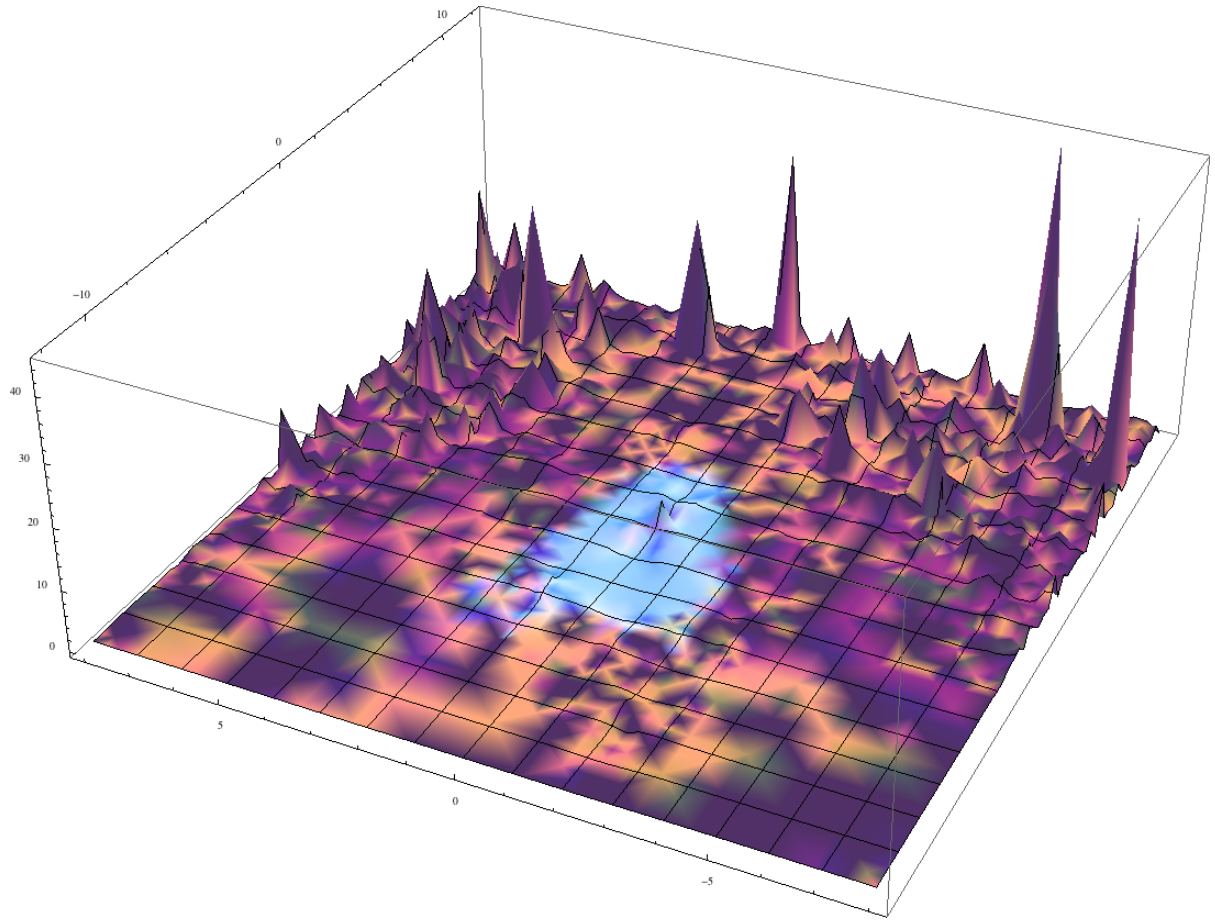

Figure 11: Mathematica plot of 5th order solution for $(a_3, a_5, a_7, a_9) = (-1/12, -1/240, 0, 0)$ showing the extreme instability of such high order solutions. At $(x, t) = (1/2, 0)$ this achieves a maximum amplitude of 11.