

--- Start Training of HNN ---

Epoch 0: Loss=3859.03 with physics loss 3472.05 and data loss 386.99  
Epoch 100: Loss=270.22 with physics loss 41.81 and data loss 228.41  
Epoch 200: Loss=256.47 with physics loss 42.07 and data loss 214.40  
Epoch 300: Loss=237.63 with physics loss 49.71 and data loss 187.93  
Epoch 400: Loss=188.64 with physics loss 54.02 and data loss 134.62  
Epoch 500: Loss=137.47 with physics loss 61.79 and data loss 75.68  
Epoch 600: Loss=82.68 with physics loss 36.65 and data loss 46.02  
Epoch 700: Loss=111.88 with physics loss 46.32 and data loss 65.57  
Epoch 800: Loss=62.37 with physics loss 33.26 and data loss 29.11  
Epoch 900: Loss=148.22 with physics loss 47.59 and data loss 100.63  
Epoch 1000: Loss=255.90 with physics loss 166.77 and data loss 89.13  
Epoch 1100: Loss=65.84 with physics loss 46.72 and data loss 19.11  
Epoch 1200: Loss=158.62 with physics loss 47.46 and data loss 111.15  
Epoch 1300: Loss=422.73 with physics loss 289.32 and data loss 133.41  
Epoch 1400: Loss=56.38 with physics loss 19.57 and data loss 36.80  
Epoch 1500: Loss=139.22 with physics loss 70.43 and data loss 68.79  
Epoch 1600: Loss=170.48 with physics loss 48.35 and data loss 122.13  
Epoch 1700: Loss=109.01 with physics loss 56.97 and data loss 52.04  
Epoch 1800: Loss=174.93 with physics loss 91.34 and data loss 83.59  
Epoch 1900: Loss=148.34 with physics loss 46.27 and data loss 102.06  
Epoch 2000: Loss=145.57 with physics loss 69.26 and data loss 76.31  
Epoch 2100: Loss=196.35 with physics loss 71.69 and data loss 124.66  
Epoch 2200: Loss=103.01 with physics loss 59.71 and data loss 43.30  
Epoch 2300: Loss=153.47 with physics loss 51.40 and data loss 102.07  
Epoch 2400: Loss=86.62 with physics loss 43.02 and data loss 43.60  
Epoch 2500: Loss=89.44 with physics loss 51.32 and data loss 38.12

Epoch 2600: Loss=27.30 with physics loss 18.42 and data loss 8.89  
Epoch 2700: Loss=31.98 with physics loss 18.52 and data loss 13.46  
Epoch 2800: Loss=14.49 with physics loss 8.81 and data loss 5.69  
Epoch 2900: Loss=15.80 with physics loss 7.28 and data loss 8.53  
Epoch 3000: Loss=26.22 with physics loss 21.63 and data loss 4.59  
Epoch 3100: Loss=47.58 with physics loss 40.49 and data loss 7.09  
Epoch 3200: Loss=15.70 with physics loss 12.83 and data loss 2.87  
Epoch 3300: Loss=284.05 with physics loss 262.09 and data loss 21.96  
Epoch 3400: Loss=15.24 with physics loss 10.60 and data loss 4.65  
Epoch 3500: Loss=29.56 with physics loss 25.95 and data loss 3.61  
Epoch 3600: Loss=20.37 with physics loss 9.70 and data loss 10.67  
Epoch 3700: Loss=13.77 with physics loss 10.27 and data loss 3.50  
Epoch 3800: Loss=41.29 with physics loss 37.47 and data loss 3.82  
Epoch 3900: Loss=10.63 with physics loss 8.27 and data loss 2.36  
Epoch 4000: Loss=25.07 with physics loss 10.84 and data loss 14.23  
Epoch 4100: Loss=23.24 with physics loss 18.63 and data loss 4.62  
Epoch 4200: Loss=27.23 with physics loss 9.39 and data loss 17.84  
Epoch 4300: Loss=25.45 with physics loss 20.30 and data loss 5.16  
Epoch 4400: Loss=8.13 with physics loss 4.04 and data loss 4.10  
Epoch 4500: Loss=25.28 with physics loss 22.18 and data loss 3.10  
Epoch 4600: Loss=19.71 with physics loss 11.70 and data loss 8.00  
Epoch 4700: Loss=17.47 with physics loss 14.13 and data loss 3.34  
Epoch 4800: Loss=12.07 with physics loss 9.79 and data loss 2.28  
Epoch 4900: Loss=16.99 with physics loss 14.20 and data loss 2.79  
Epoch 5000: Loss=42.41 with physics loss 17.03 and data loss 25.38  
Epoch 5100: Loss=6.95 with physics loss 2.60 and data loss 4.34  
Epoch 5200: Loss=8.29 with physics loss 5.88 and data loss 2.41  
Epoch 5300: Loss=12.44 with physics loss 10.63 and data loss 1.81

Epoch 5400: Loss=12.86 with physics loss 11.22 and data loss 1.64

Epoch 5500: Loss=7.32 with physics loss 6.21 and data loss 1.10

Epoch 5600: Loss=2.18 with physics loss 1.33 and data loss 0.84

Epoch 5700: Loss=4.61 with physics loss 3.83 and data loss 0.77

Epoch 5800: Loss=2.25 with physics loss 1.36 and data loss 0.89

Epoch 5900: Loss=5.60 with physics loss 5.00 and data loss 0.60

Epoch 6000: Loss=4.35 with physics loss 3.80 and data loss 0.55

Epoch 6100: Loss=3.51 with physics loss 2.99 and data loss 0.52

Epoch 6200: Loss=7.77 with physics loss 7.23 and data loss 0.54

Epoch 6300: Loss=2.39 with physics loss 2.01 and data loss 0.38

Epoch 6400: Loss=3.77 with physics loss 3.40 and data loss 0.37

Epoch 6500: Loss=1.24 with physics loss 0.53 and data loss 0.71

Epoch 6600: Loss=1.37 with physics loss 1.03 and data loss 0.34

Epoch 6700: Loss=2.28 with physics loss 1.96 and data loss 0.31

Epoch 6800: Loss=9.90 with physics loss 9.45 and data loss 0.45

Epoch 6900: Loss=1.80 with physics loss 0.88 and data loss 0.92

Epoch 7000: Loss=3.44 with physics loss 3.05 and data loss 0.39

Epoch 7100: Loss=3.22 with physics loss 2.91 and data loss 0.32

Epoch 7200: Loss=4.20 with physics loss 2.79 and data loss 1.41

Epoch 7300: Loss=0.87 with physics loss 0.49 and data loss 0.38

Epoch 7400: Loss=3.58 with physics loss 3.25 and data loss 0.32

Epoch 7500: Loss=1.72 with physics loss 1.41 and data loss 0.31

Epoch 7600: Loss=1.09 with physics loss 0.89 and data loss 0.20

Epoch 7700: Loss=0.55 with physics loss 0.38 and data loss 0.17

Epoch 7800: Loss=1.44 with physics loss 1.28 and data loss 0.16

Epoch 7900: Loss=0.94 with physics loss 0.80 and data loss 0.14

Epoch 8000: Loss=1.26 with physics loss 1.11 and data loss 0.14

Epoch 8100: Loss=0.88 with physics loss 0.75 and data loss 0.13

Epoch 8200: Loss=1.49 with physics loss 1.36 and data loss 0.13  
Epoch 8300: Loss=0.76 with physics loss 0.64 and data loss 0.11  
Epoch 8400: Loss=0.54 with physics loss 0.44 and data loss 0.10  
Epoch 8500: Loss=1.50 with physics loss 1.39 and data loss 0.10  
Epoch 8600: Loss=0.75 with physics loss 0.66 and data loss 0.09  
Epoch 8700: Loss=0.84 with physics loss 0.75 and data loss 0.09  
Epoch 8800: Loss=0.84 with physics loss 0.75 and data loss 0.09  
Epoch 8900: Loss=1.18 with physics loss 1.08 and data loss 0.09  
Epoch 9000: Loss=0.75 with physics loss 0.67 and data loss 0.08  
Epoch 9100: Loss=0.53 with physics loss 0.46 and data loss 0.08  
Epoch 9200: Loss=0.87 with physics loss 0.79 and data loss 0.08  
Epoch 9300: Loss=0.99 with physics loss 0.91 and data loss 0.08  
Epoch 9400: Loss=0.70 with physics loss 0.62 and data loss 0.07  
Epoch 9500: Loss=0.90 with physics loss 0.82 and data loss 0.08  
Epoch 9600: Loss=1.29 with physics loss 1.20 and data loss 0.08  
Epoch 9700: Loss=0.86 with physics loss 0.78 and data loss 0.07  
Epoch 9800: Loss=0.76 with physics loss 0.69 and data loss 0.07  
Epoch 9900: Loss=0.27 with physics loss 0.21 and data loss 0.06