Models trained using 3000 samples and 30 epochs

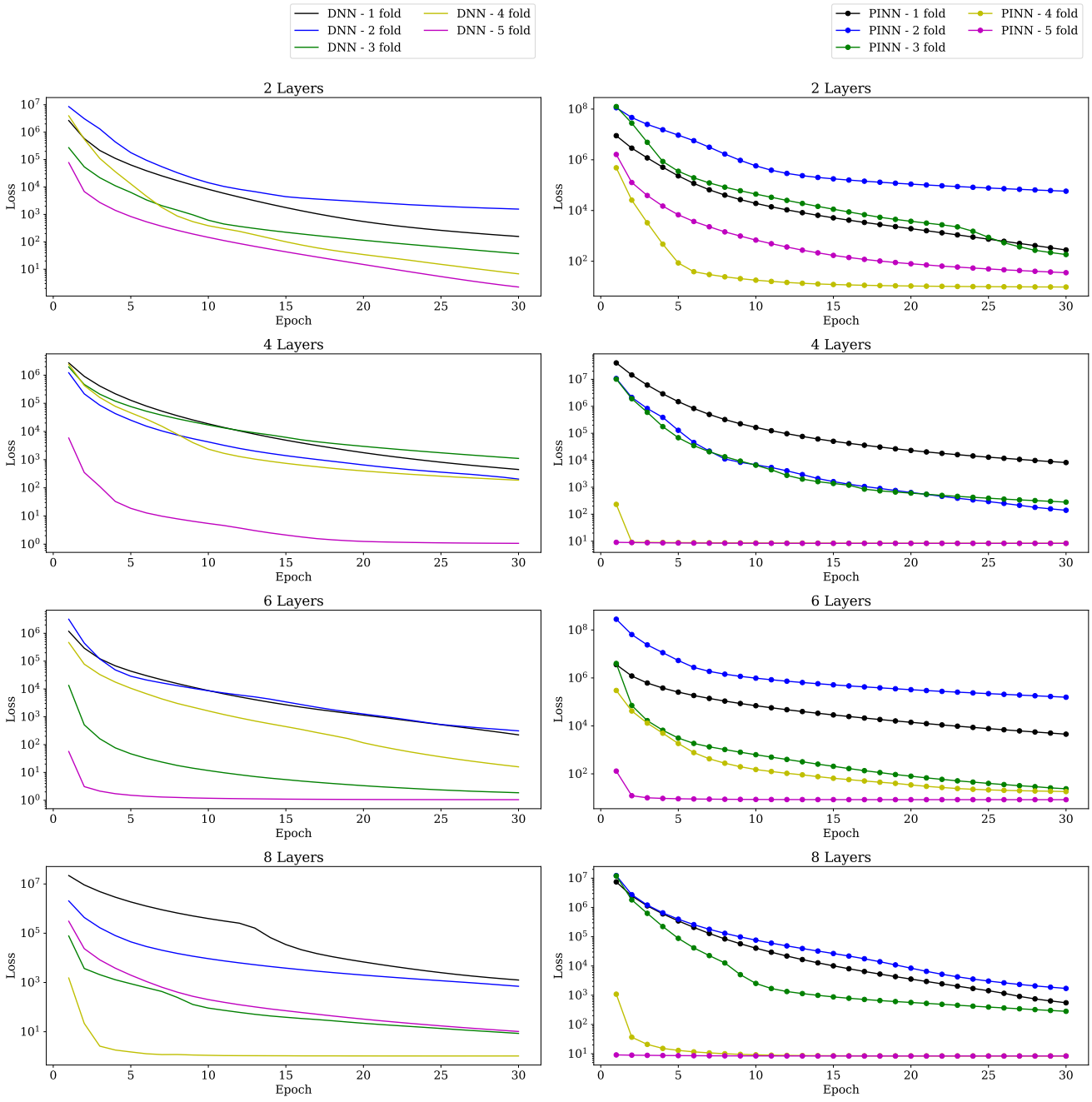

Figure 1. Training loss for DNN and PINN models in 5-Fold Cross-validation using 3000 samples and 30 epochs

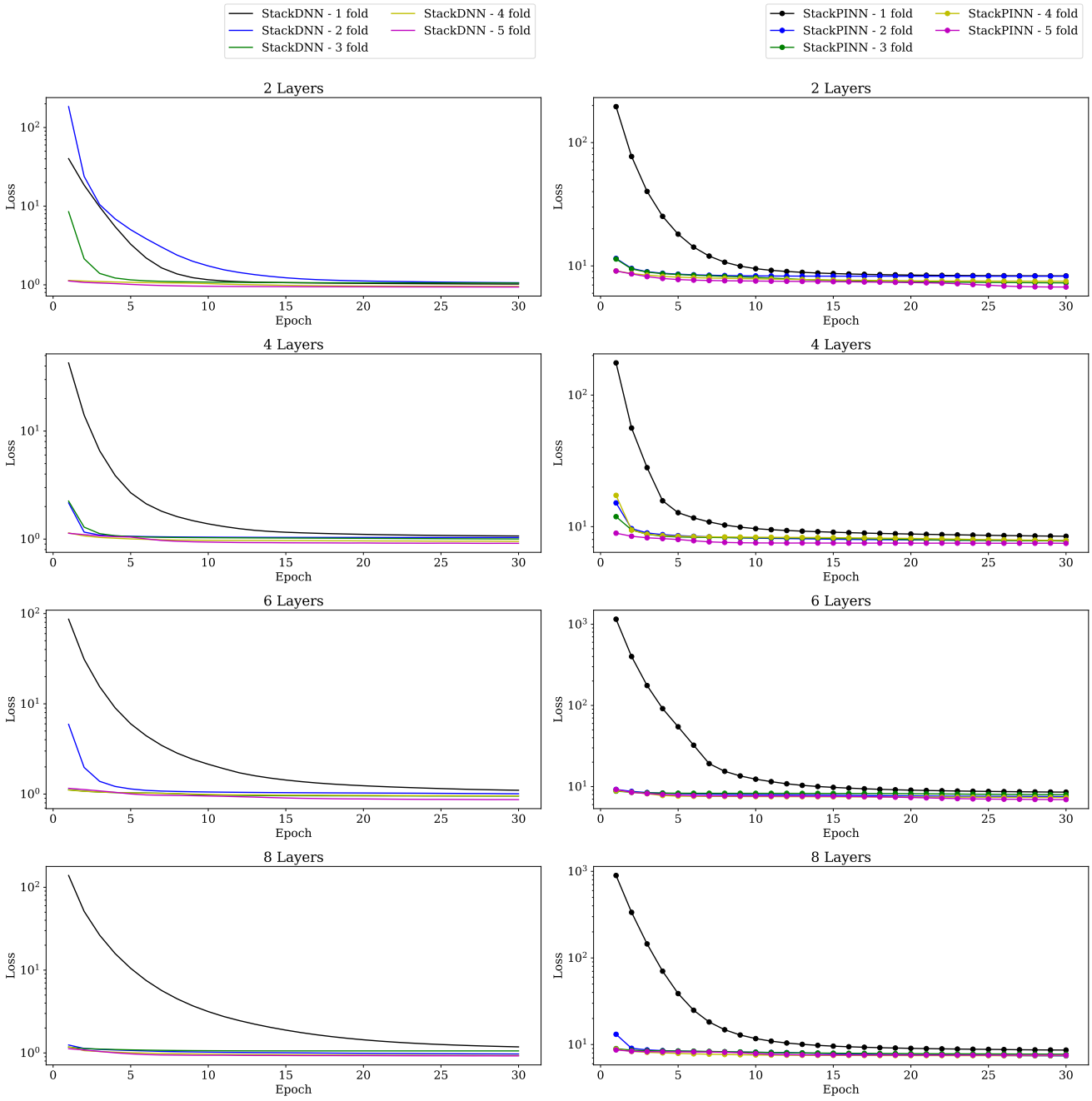

Figure 2. Training loss for StackDNN and StackPINN models in 5-Fold Cross-validation using 3000 samples and 30 epochs

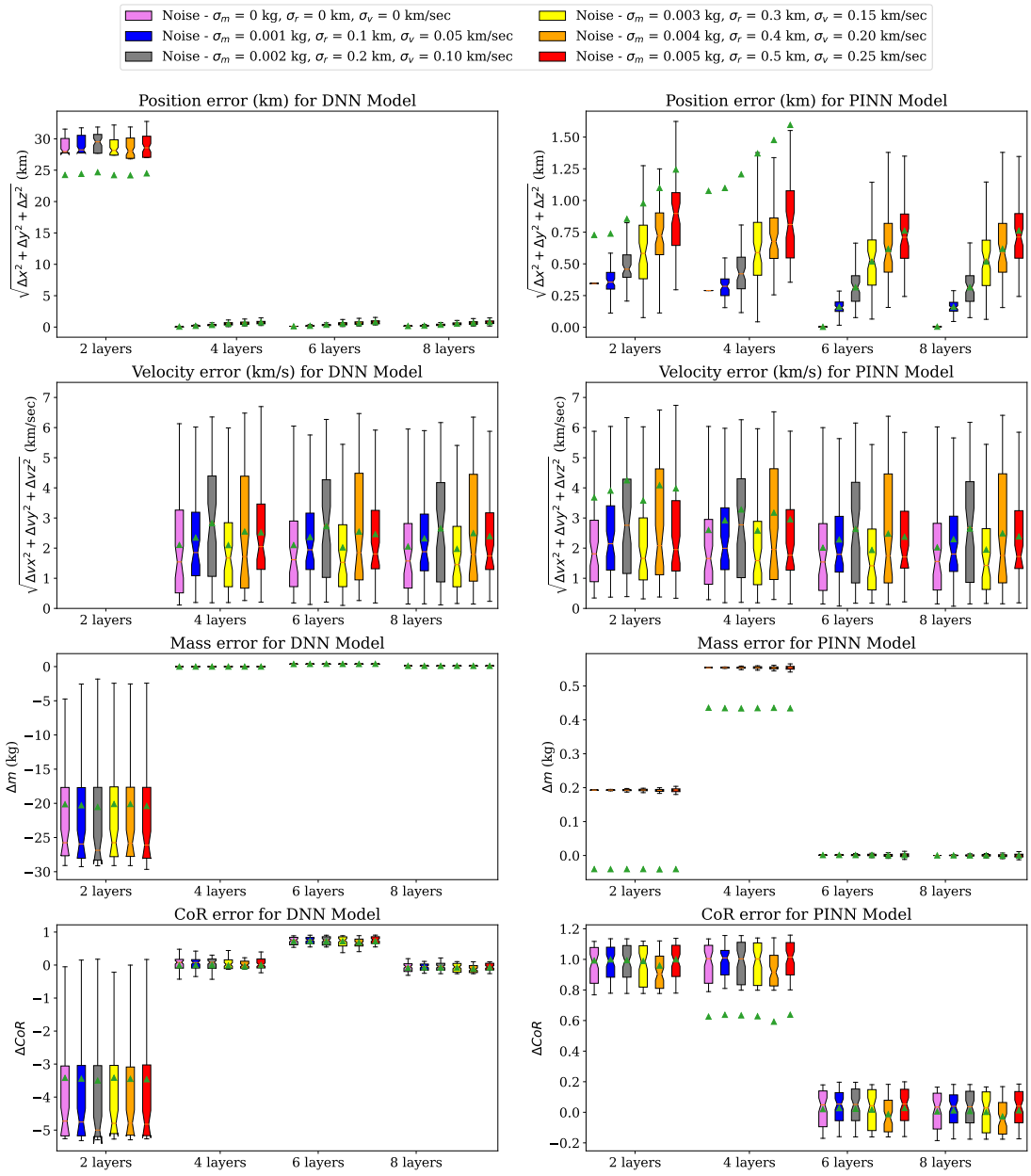

Figure 3. Error comparison of DNN and PINN models trained using 3000 samples and 30 epochs for multiple noise variations in LEMUR Satellites inelastic collision data

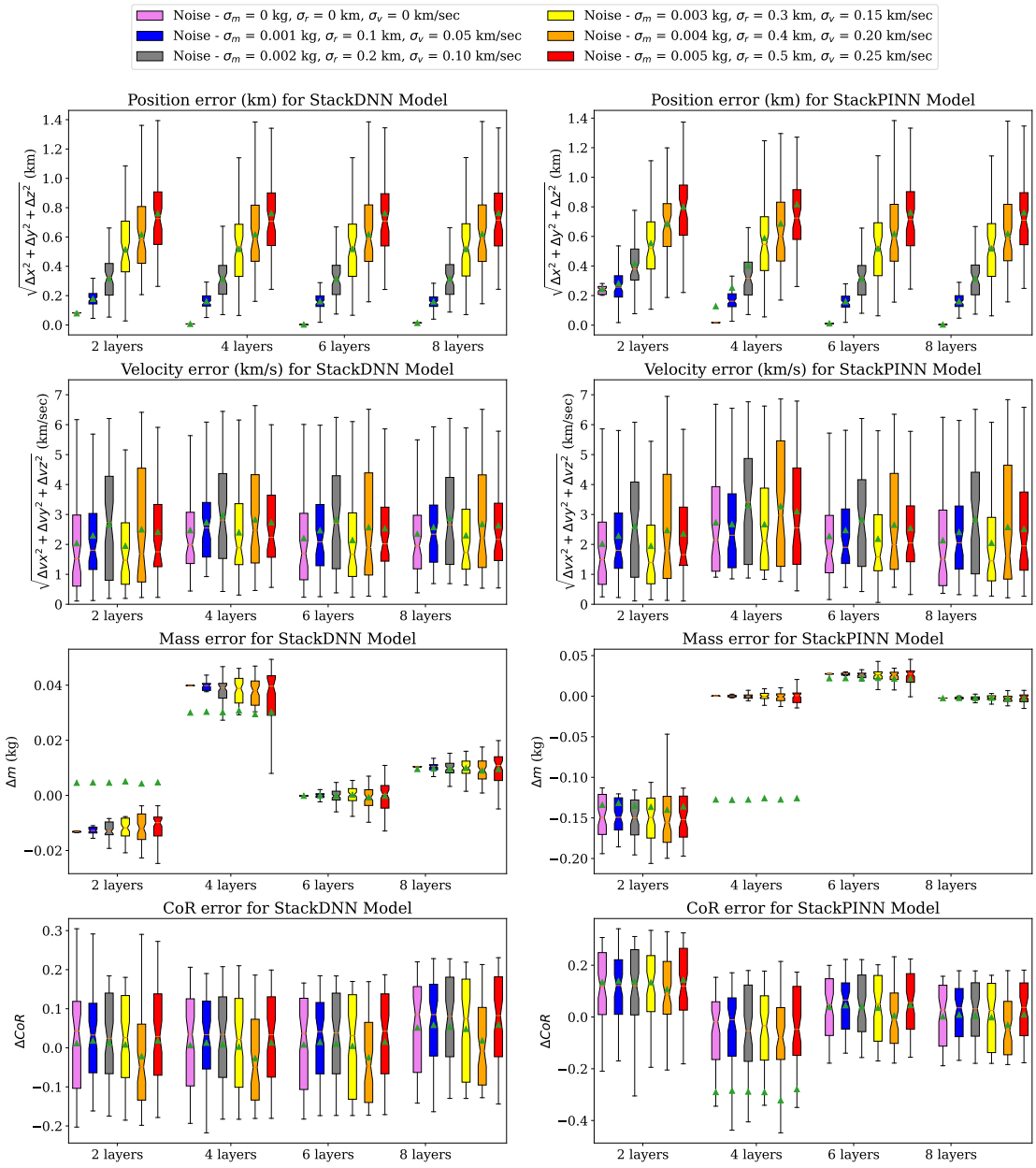

Figure 4. Error comparison of StackDNN and StackPINN models trained using 3000 samples and 30 epochs for multiple noise variations in LEMUR satellites inelastic collision data

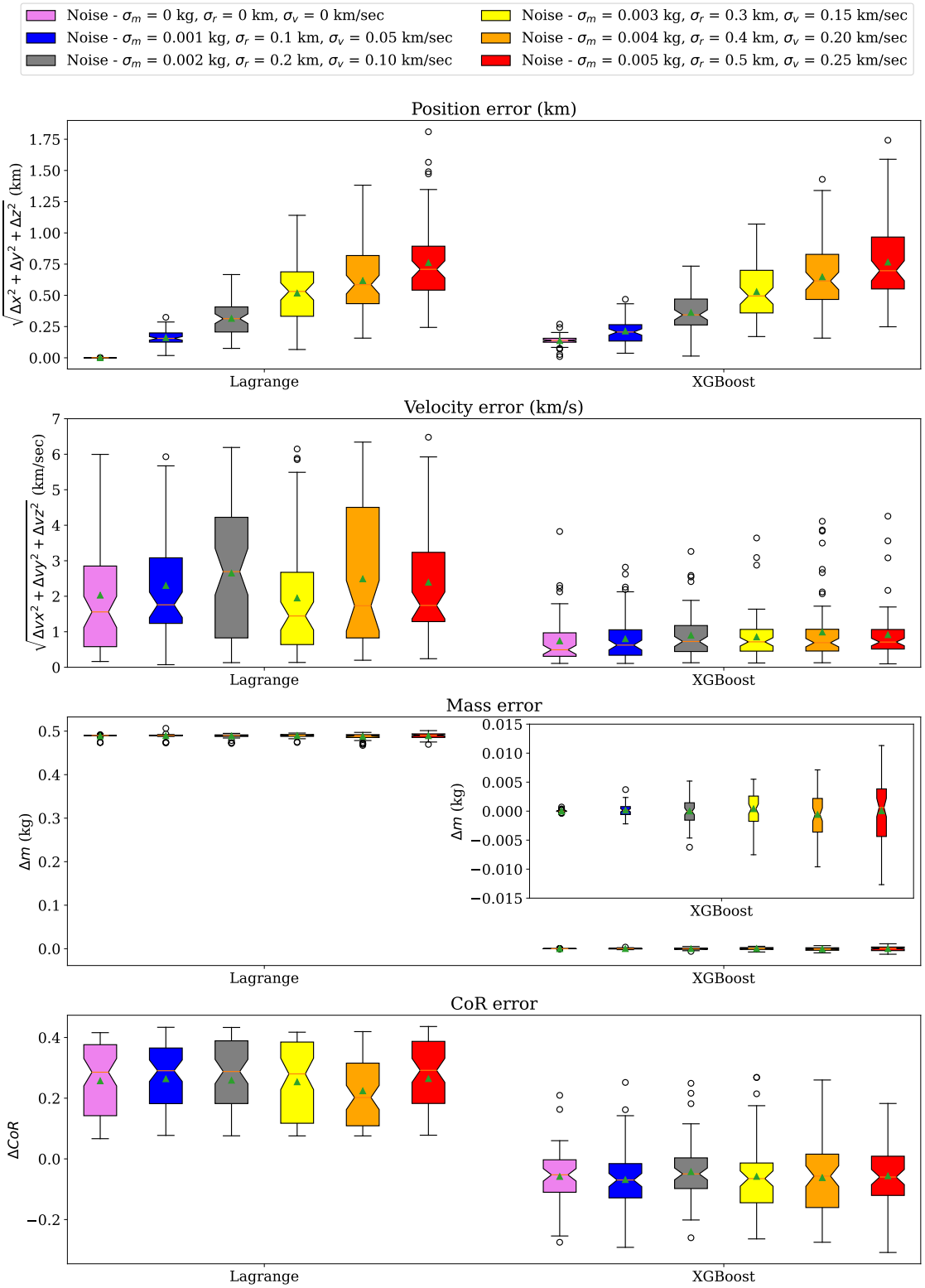

Figure 5. Error comparison of Lagrange and XGBoost models trained using 3000 samples for multiple noise variations in LEMUR satellites inelastic collision data

Models trained using 3000 samples and 50 epochs

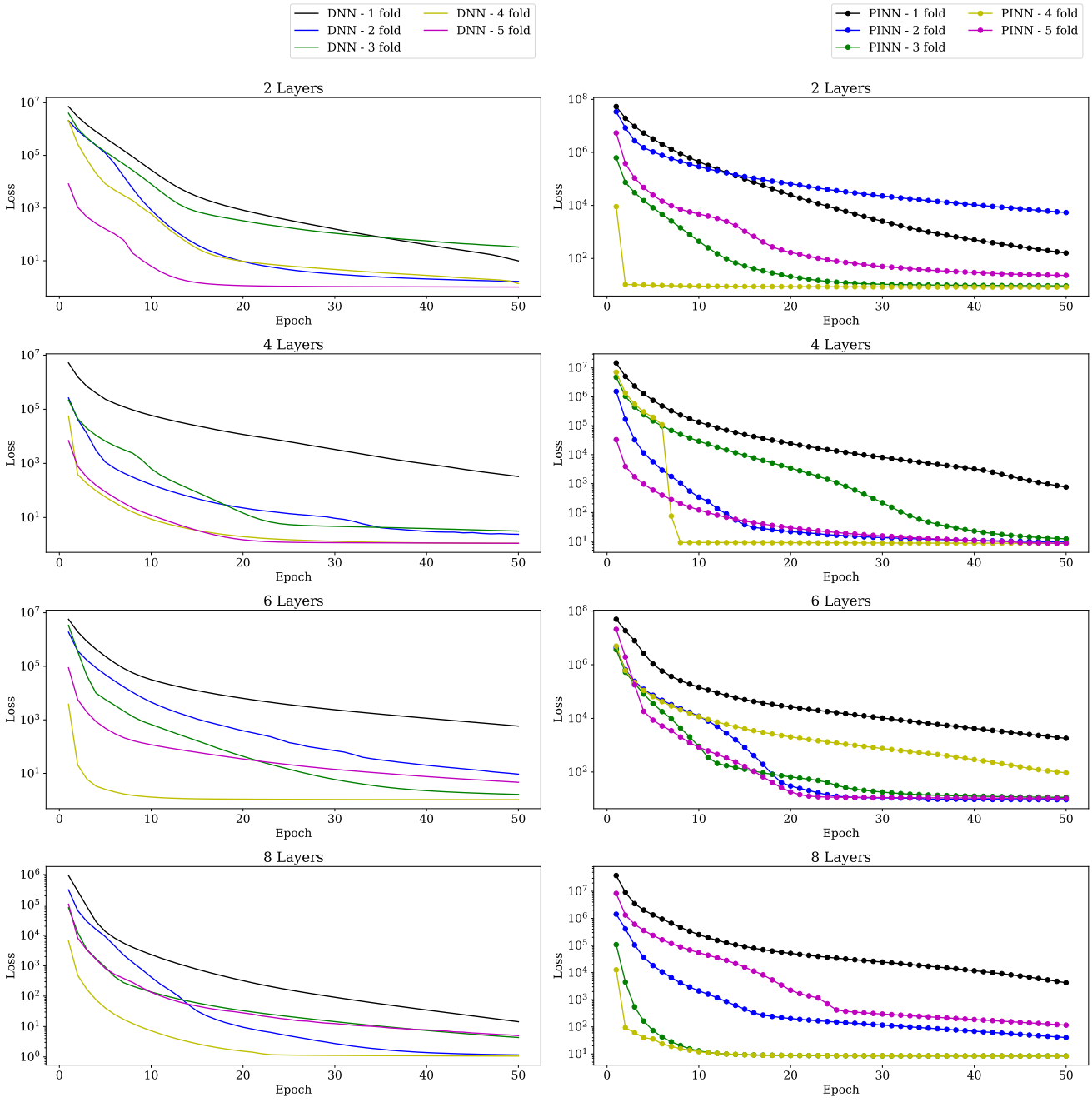

Figure 6. Training loss for DNN and PINN models in 5-Fold Cross-validation using 3000 samples and 50 epochs

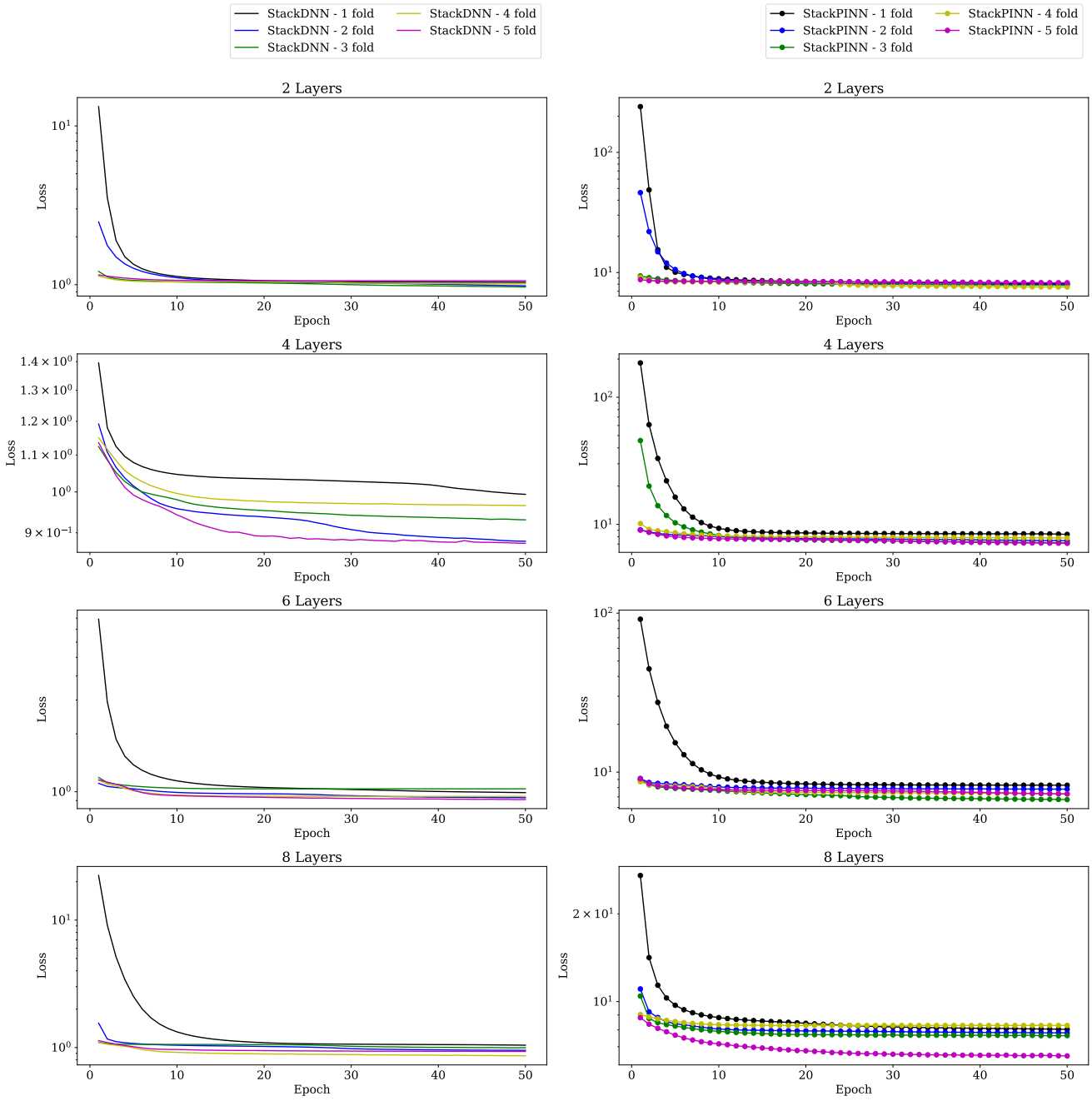

Figure 7. Training loss for StackDNN and StackPINN models in 5-Fold Cross-validation using 3000 samples and 50 epochs

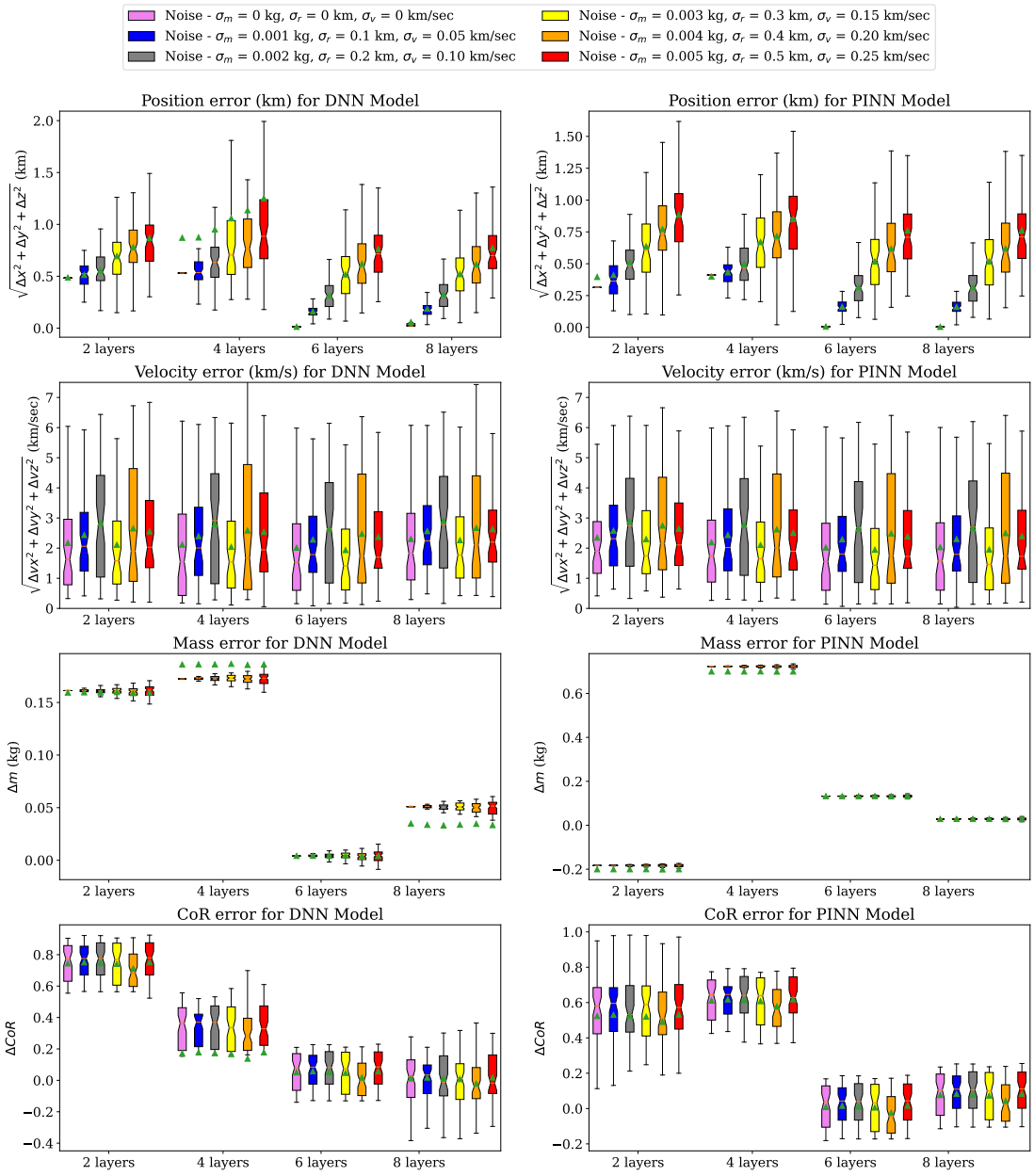

Figure 8. Error comparison of DNN and PINN models trained using 3000 samples and 50 epochs for multiple noise variations in LEMUR Satellites inelastic collision data

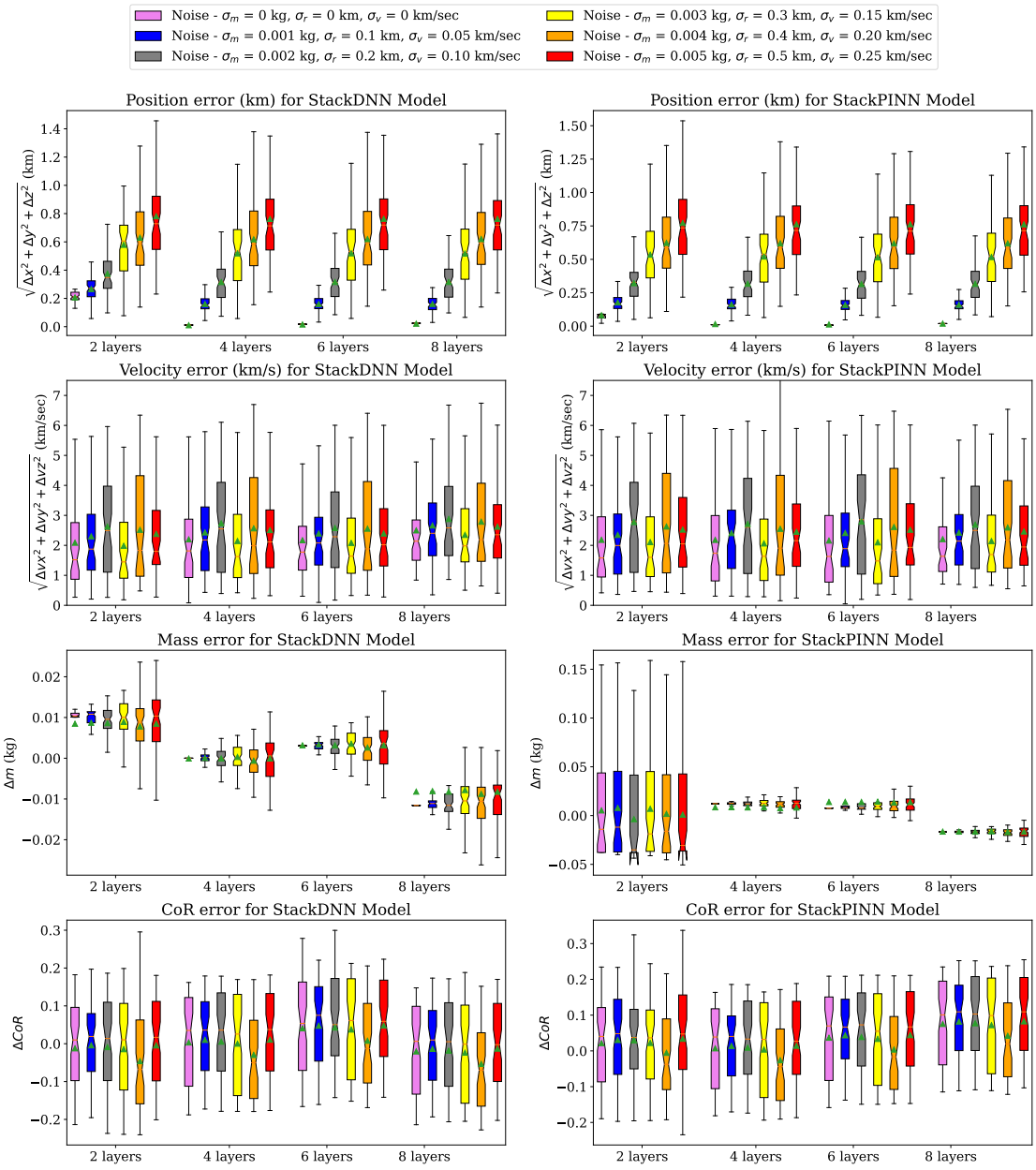

Figure 9. Error comparison of StackDNN and StackPINN models trained using 3000 samples and 50 epochs for multiple noise variations in LEMUR satellites inelastic collision data

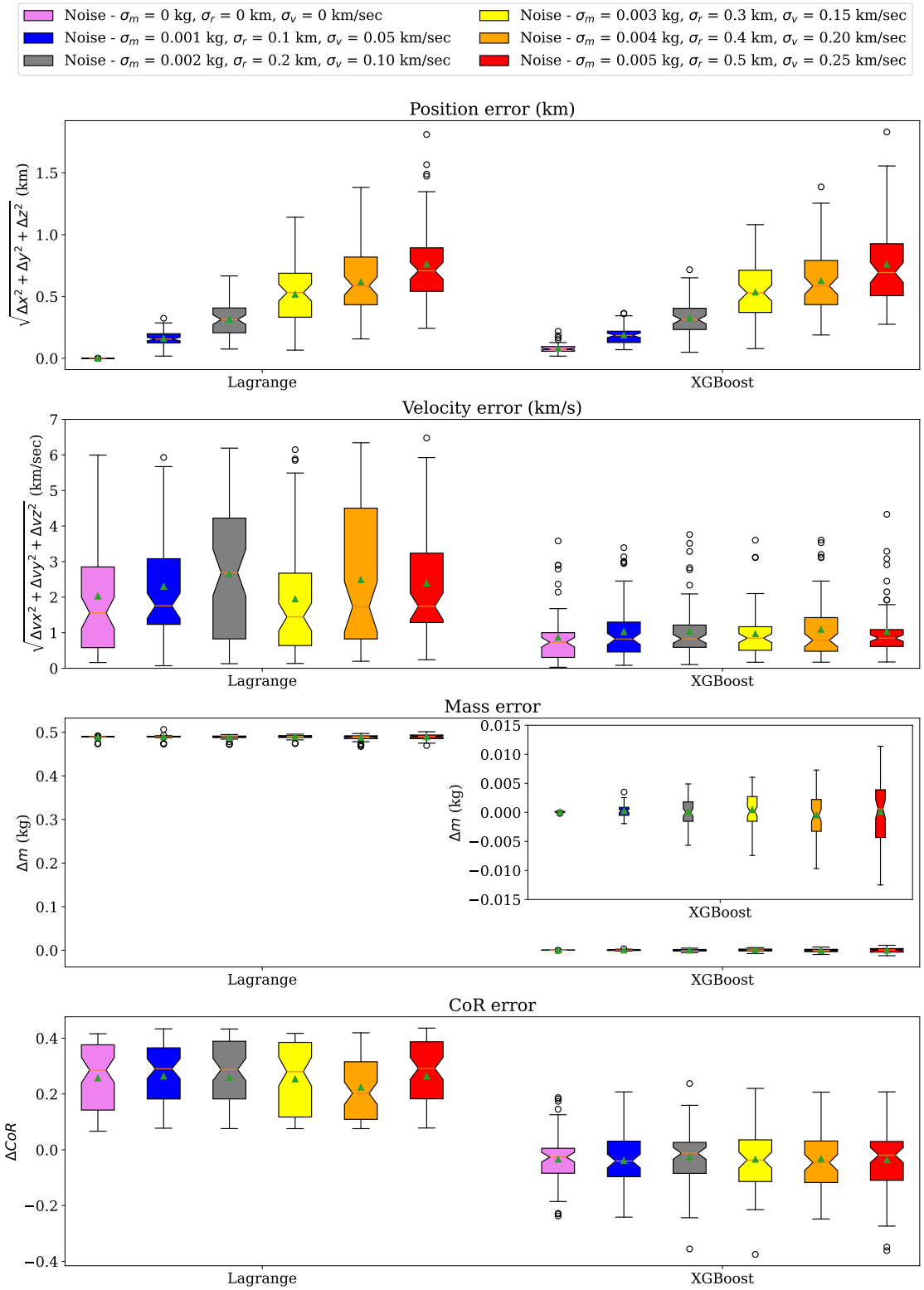

Figure 10. Error comparison of Lagrange and XGBoost models trained using 3000 samples for multiple noise variations in LEMUR satellites inelastic collision data

Models trained using 4000 samples and 30 epochs

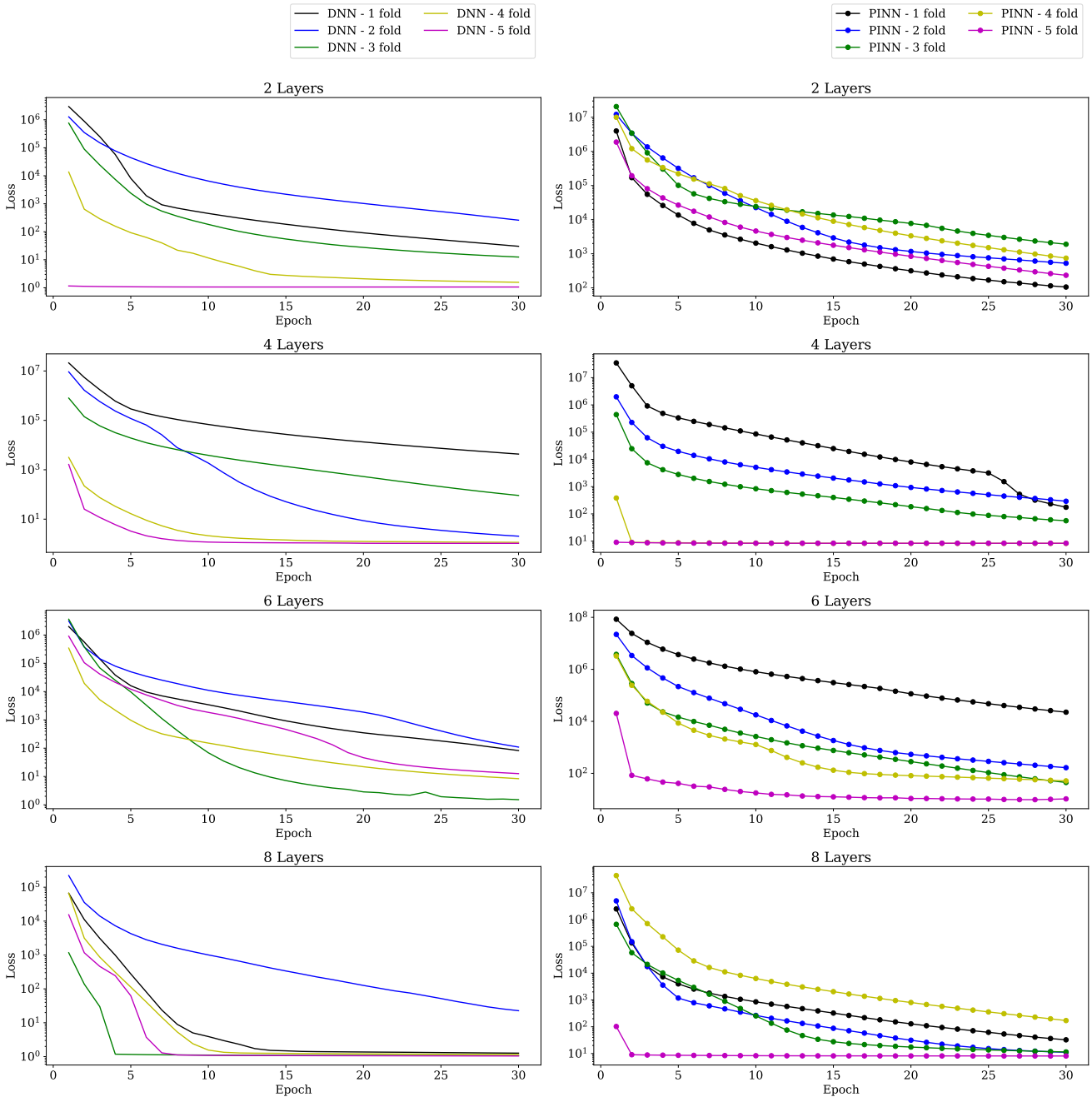

Figure 11. Training loss for DNN and PINN models in 5-Fold Cross-validation using 4000 samples and 30 epochs

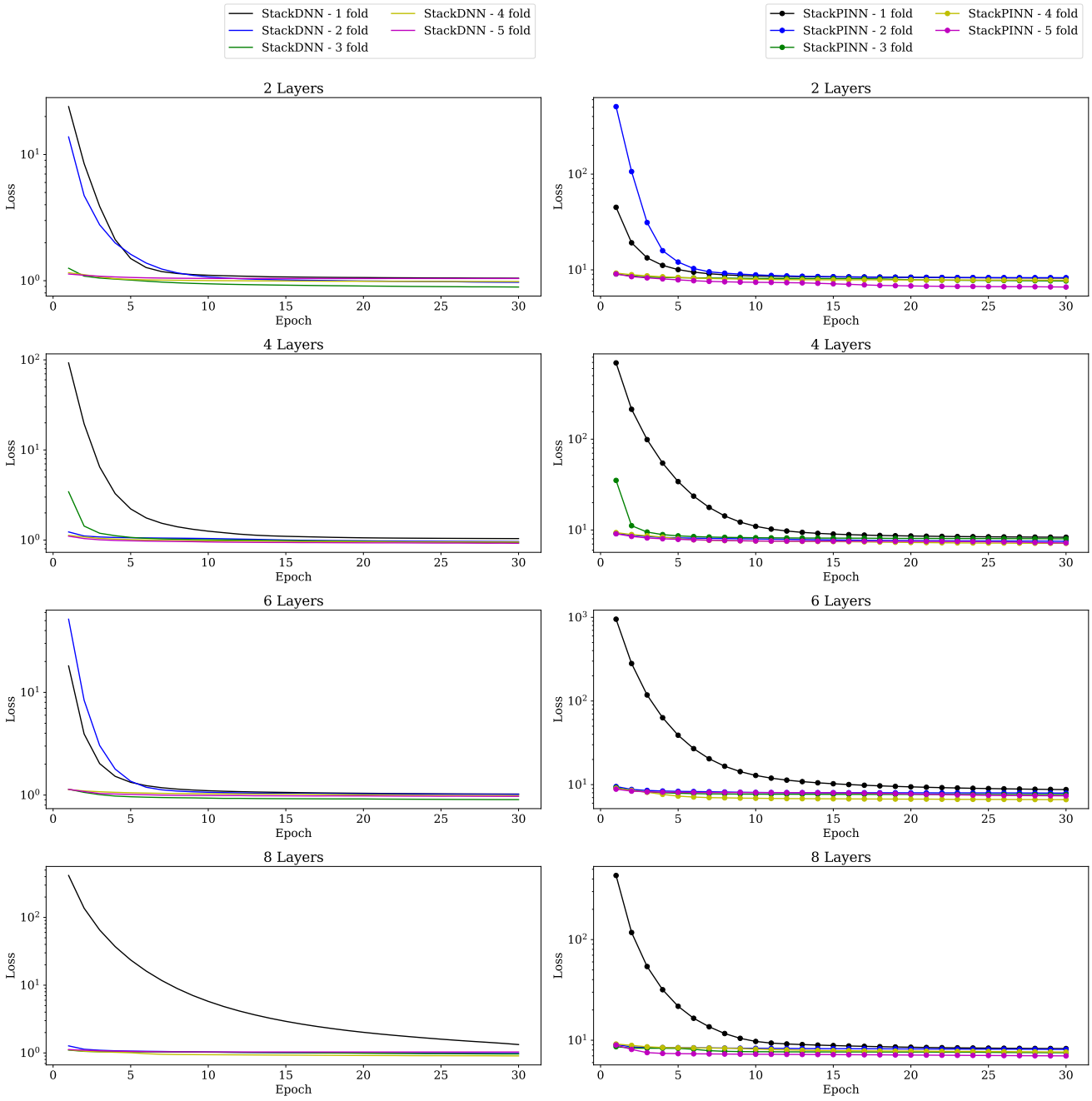

Figure 12. Training loss for StackDNN and StackPINN models in 5-Fold Cross-validation using 4000 samples and 30 epochs

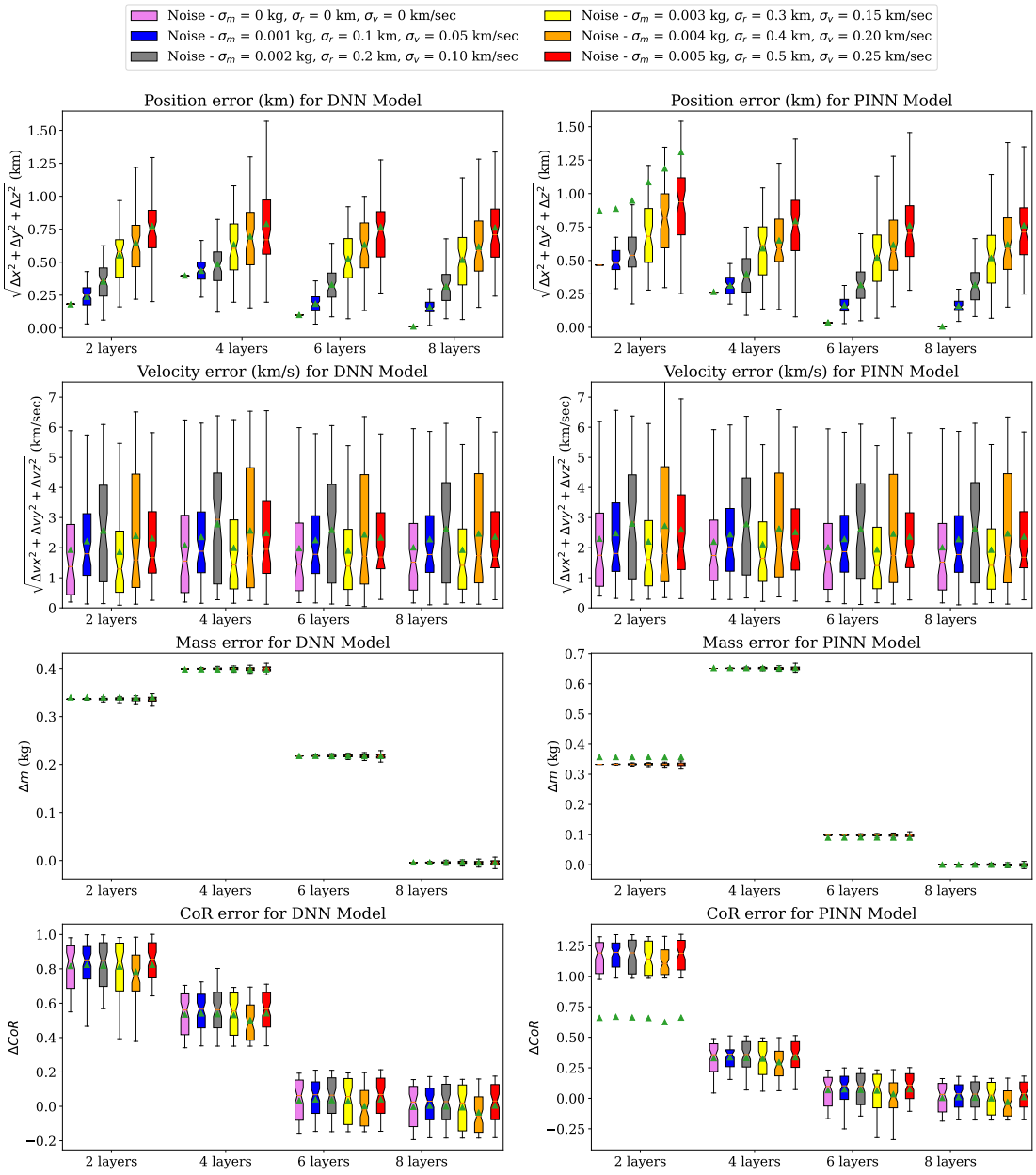

Figure 13. Error comparison of DNN and PINN models trained using 4000 samples and 30 epochs for multiple noise variations in LEMUR Satellites inelastic collision data

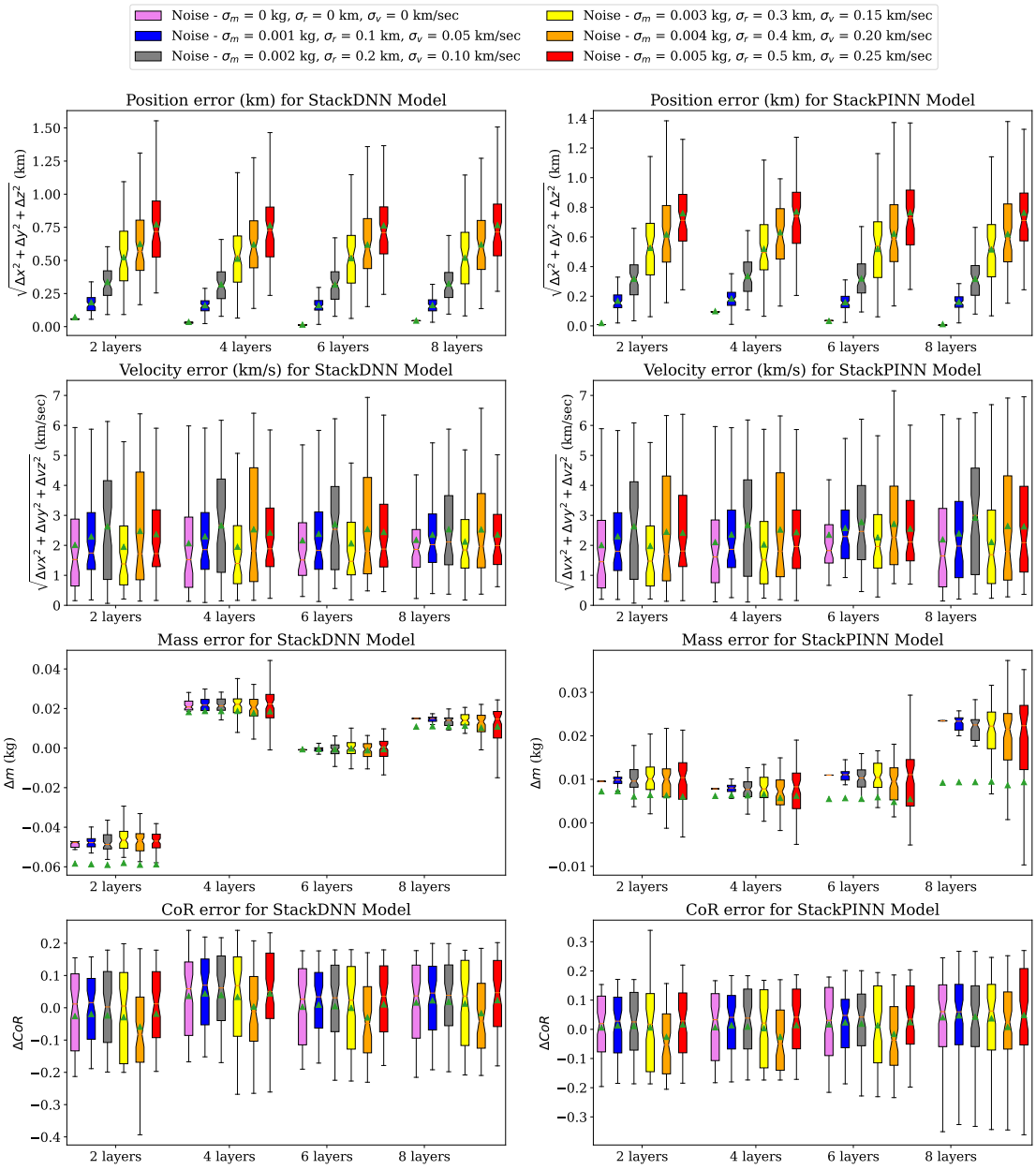

Figure 14. Error comparison of StackDNN and StackPINN models trained using 4000 samples and 30 epochs for multiple noise variations in LEMUR satellites inelastic collision data

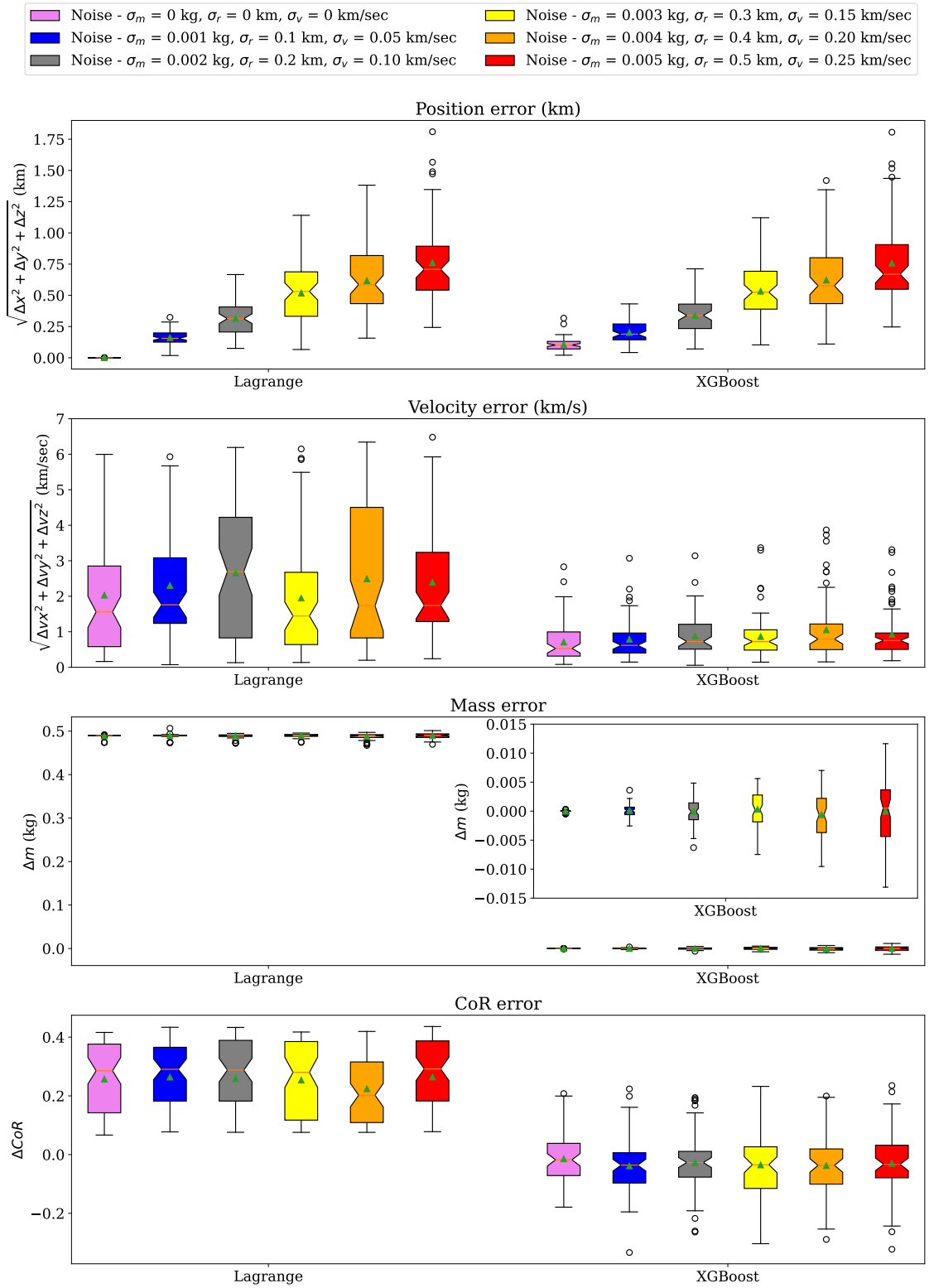

Figure 15. Error comparison of Lagrange and XGBoost models trained using 4000 samples for multiple noise variations in LEMUR satellites inelastic collision data

Models trained using 4000 samples and 50 epochs

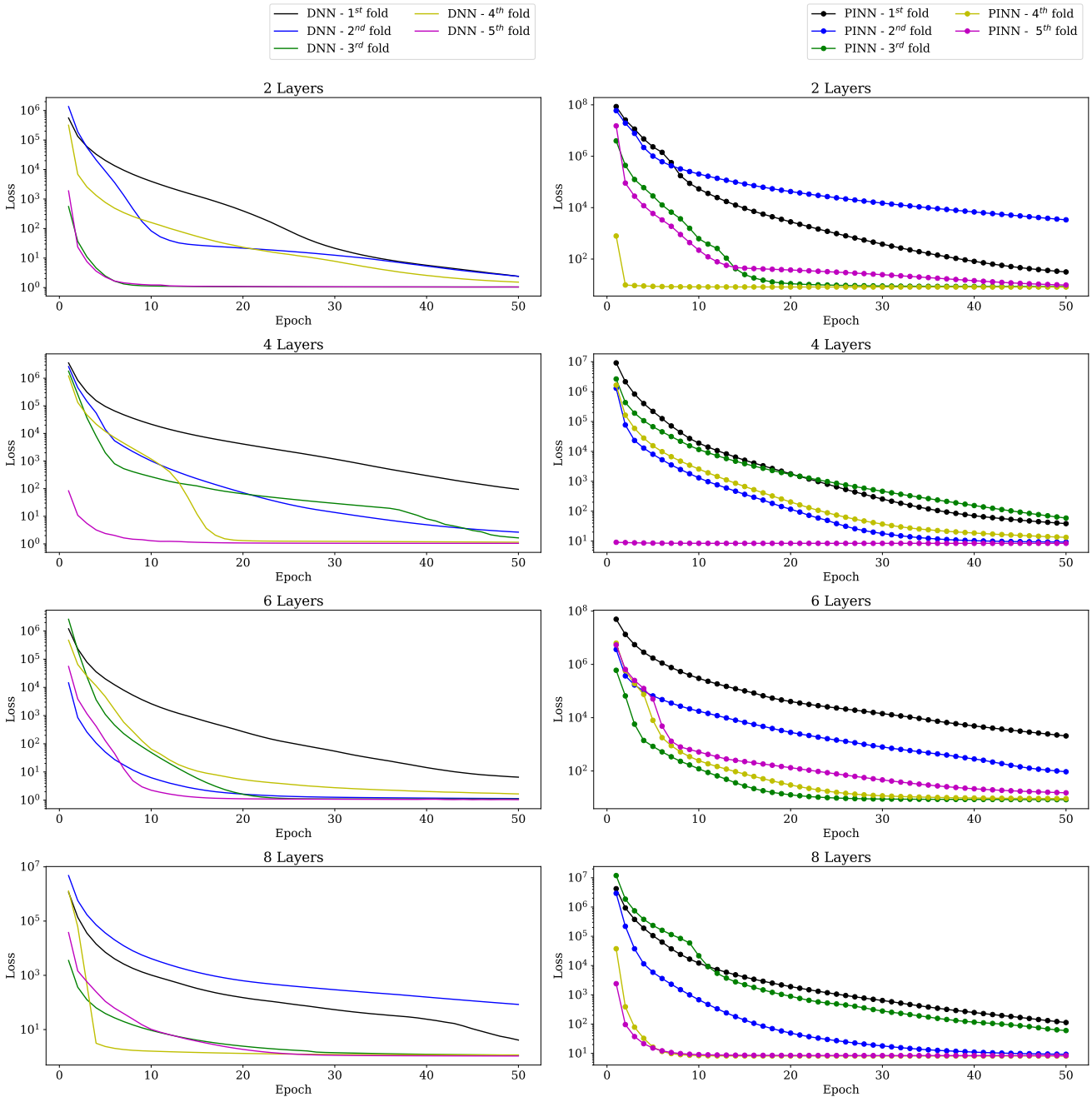

Figure 16. Training loss for DNN and PINN models in 5-Fold Cross-validation using 4000 samples and 50 epochs

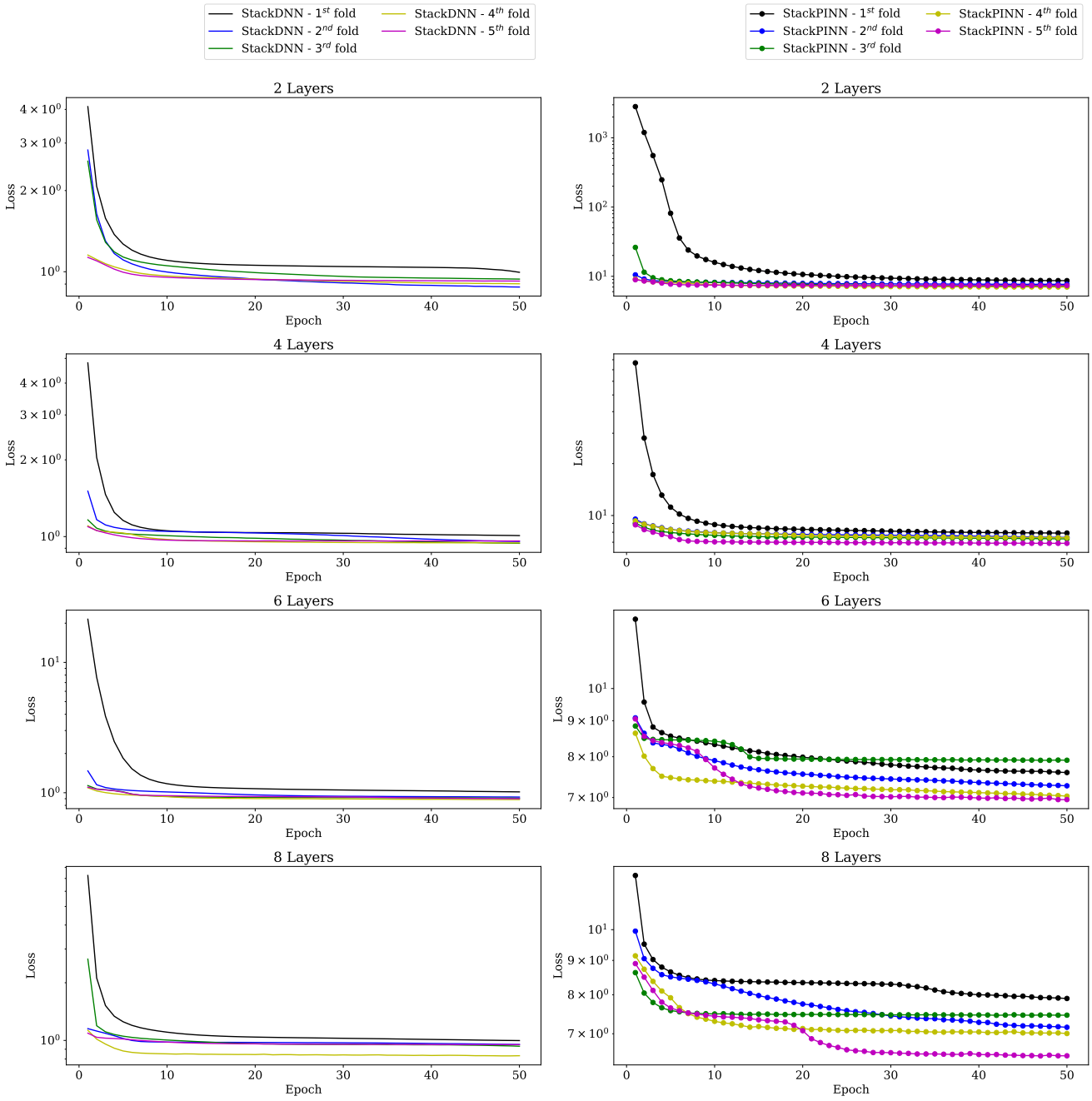

Figure 17. Training loss for StackDNN and StackPINN models in 5-Fold Cross-validation using 4000 samples and 50 epochs

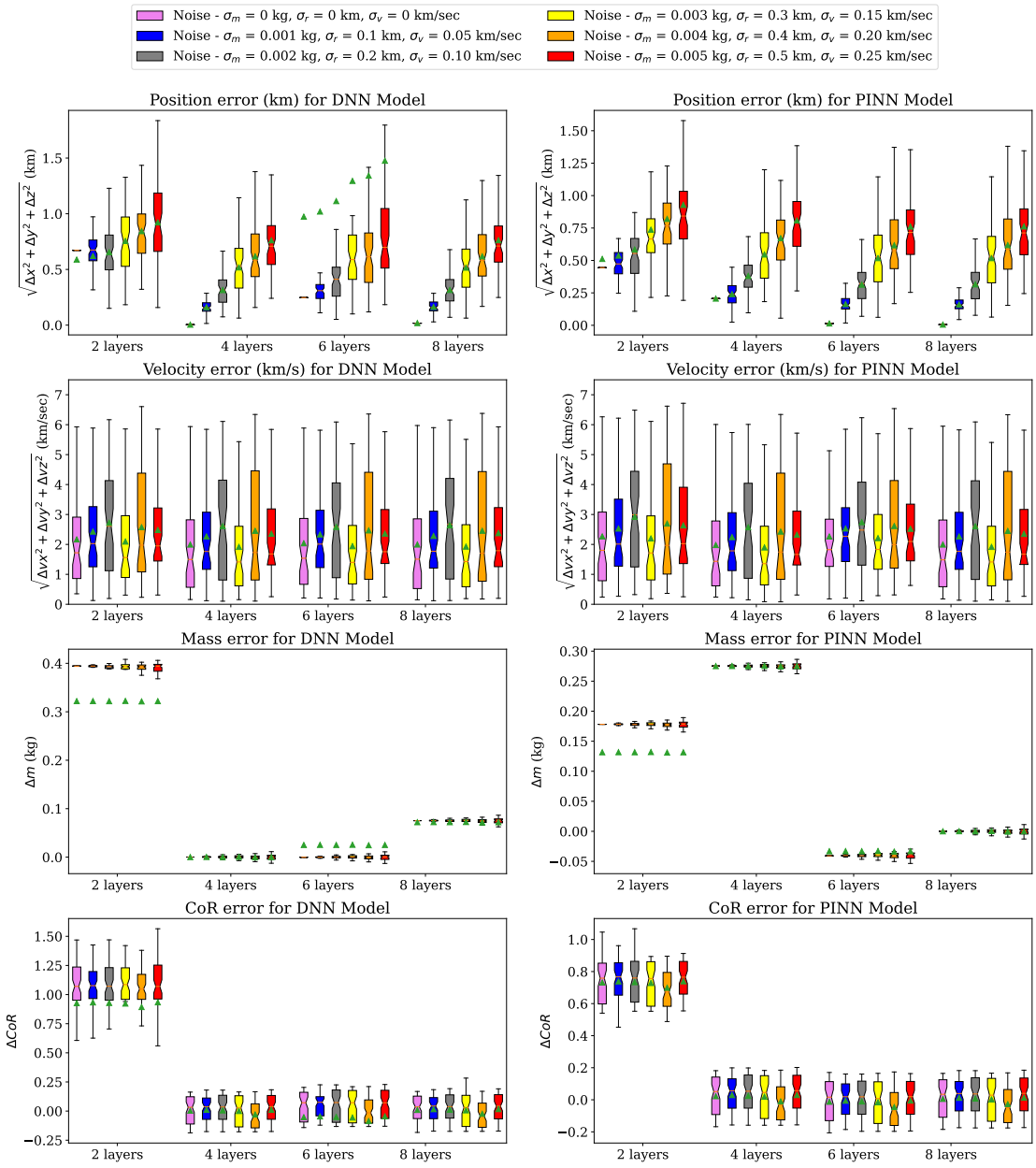

Figure 18. Error comparison of DNN and PINN models trained using 4000 samples and 50 epochs for multiple noise variations in LEMUR Satellites inelastic collision data

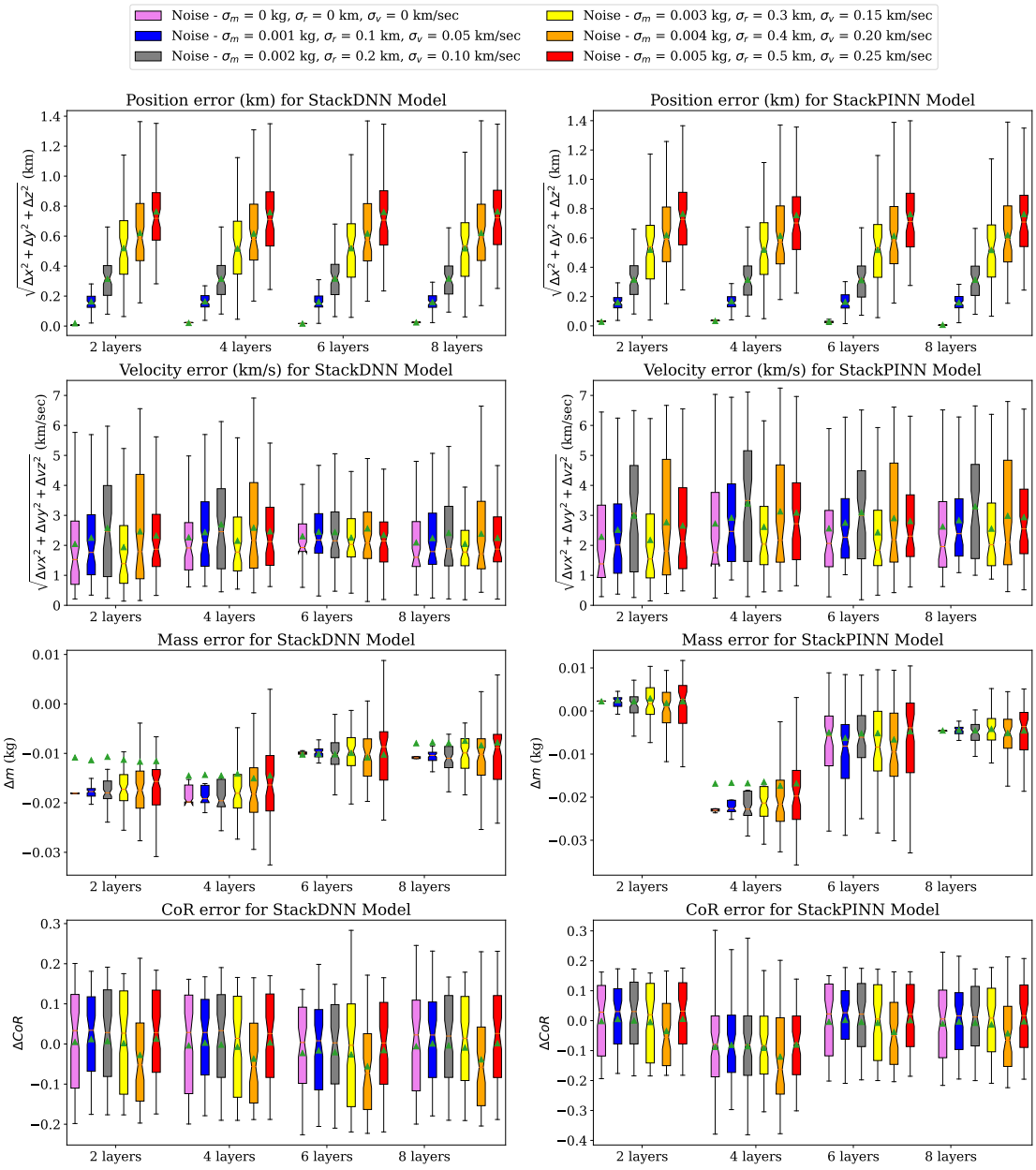

Figure 19. Error comparison of StackDNN and StackPINN models trained using 4000 samples and 50 epochs for multiple noise variations in LEMUR satellites inelastic collision data

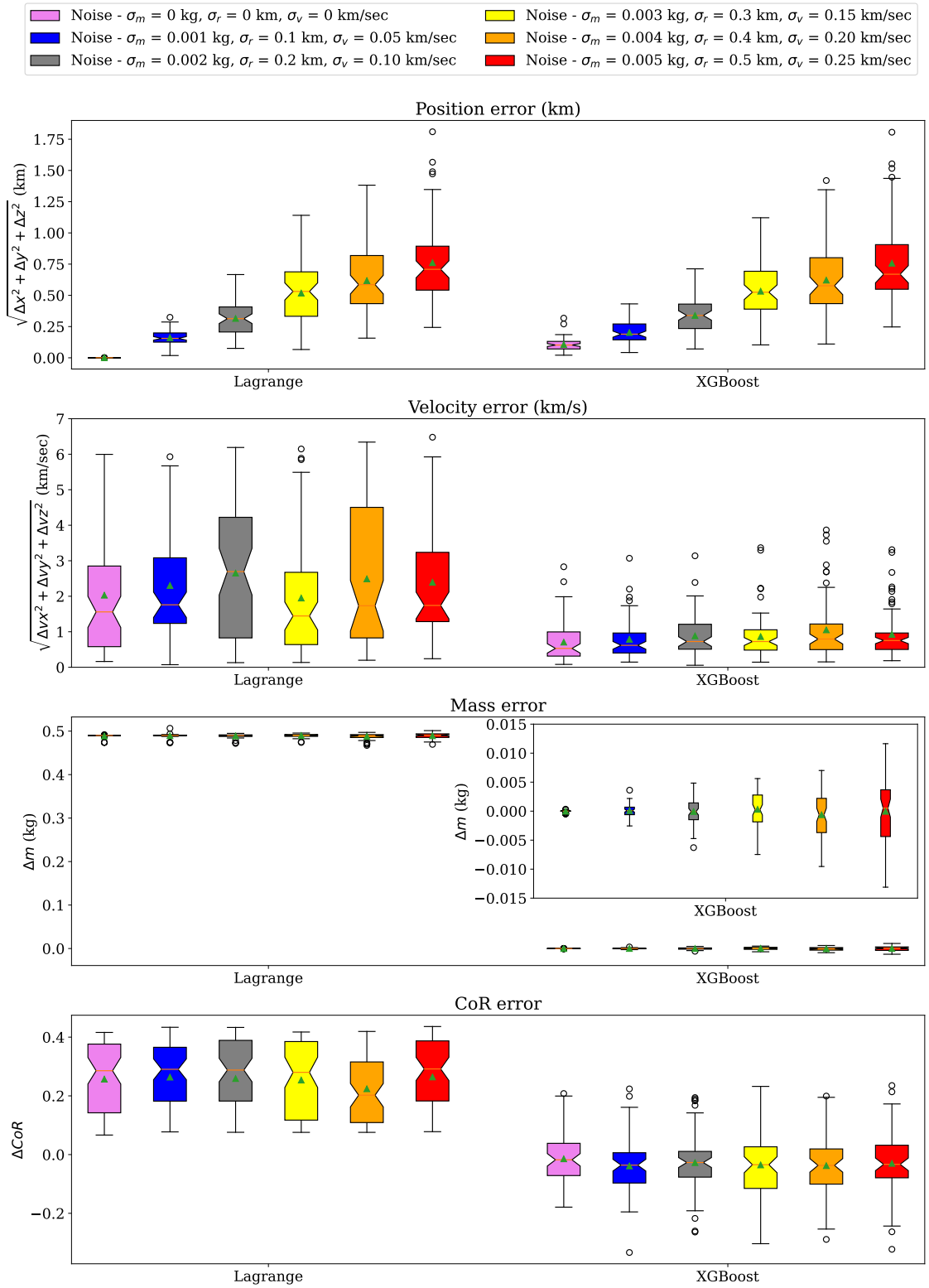

Figure 20. Error comparison of Lagrange and XGBoost models trained using 4000 samples for multiple noise variations in LEMUR satellites inelastic collision data

Models trained using 8235 samples and 30 epochs

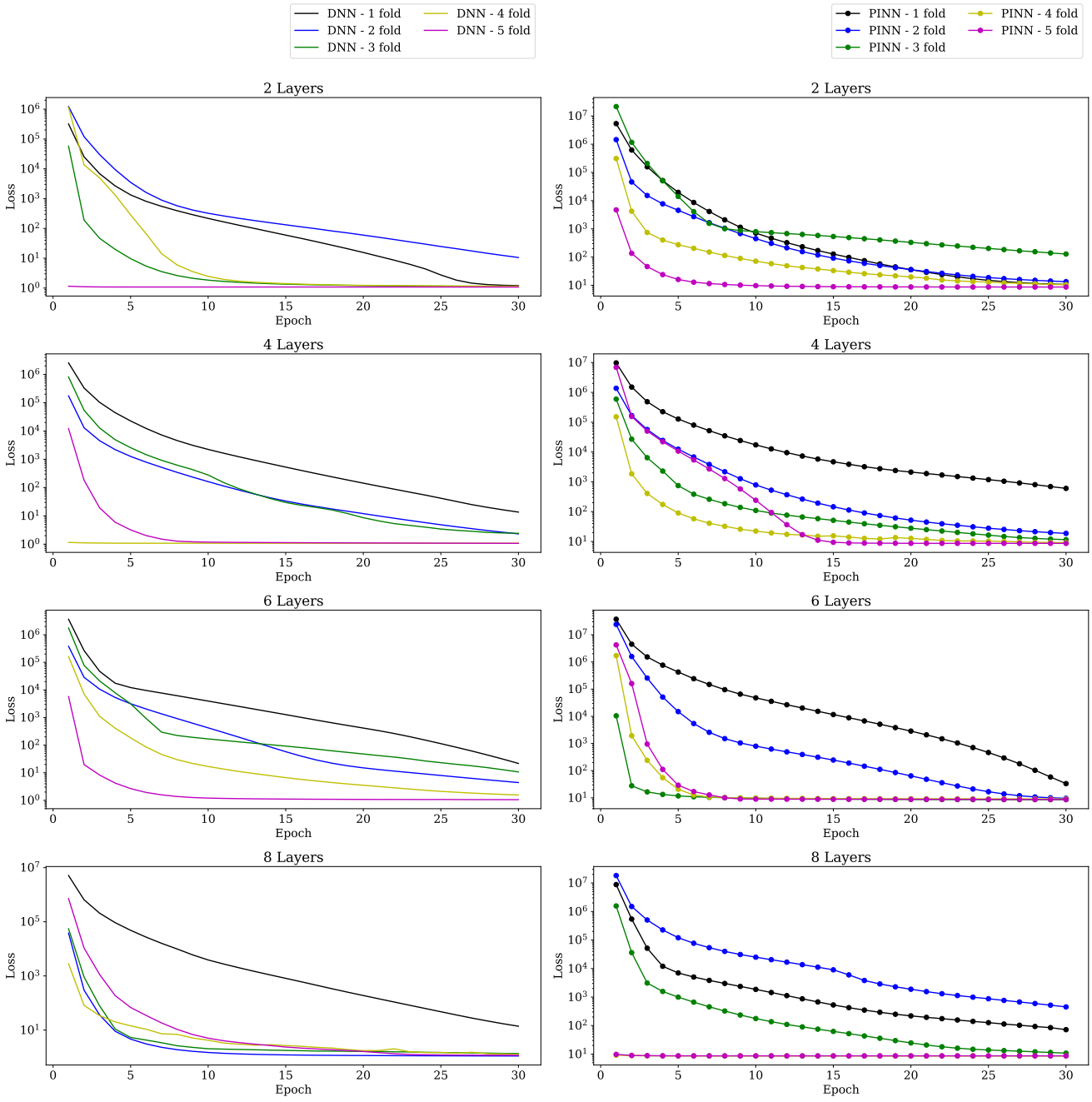

Figure 21. Training loss for DNN and PINN models in 5-Fold Cross-validation using 8235 samples and 30 epochs

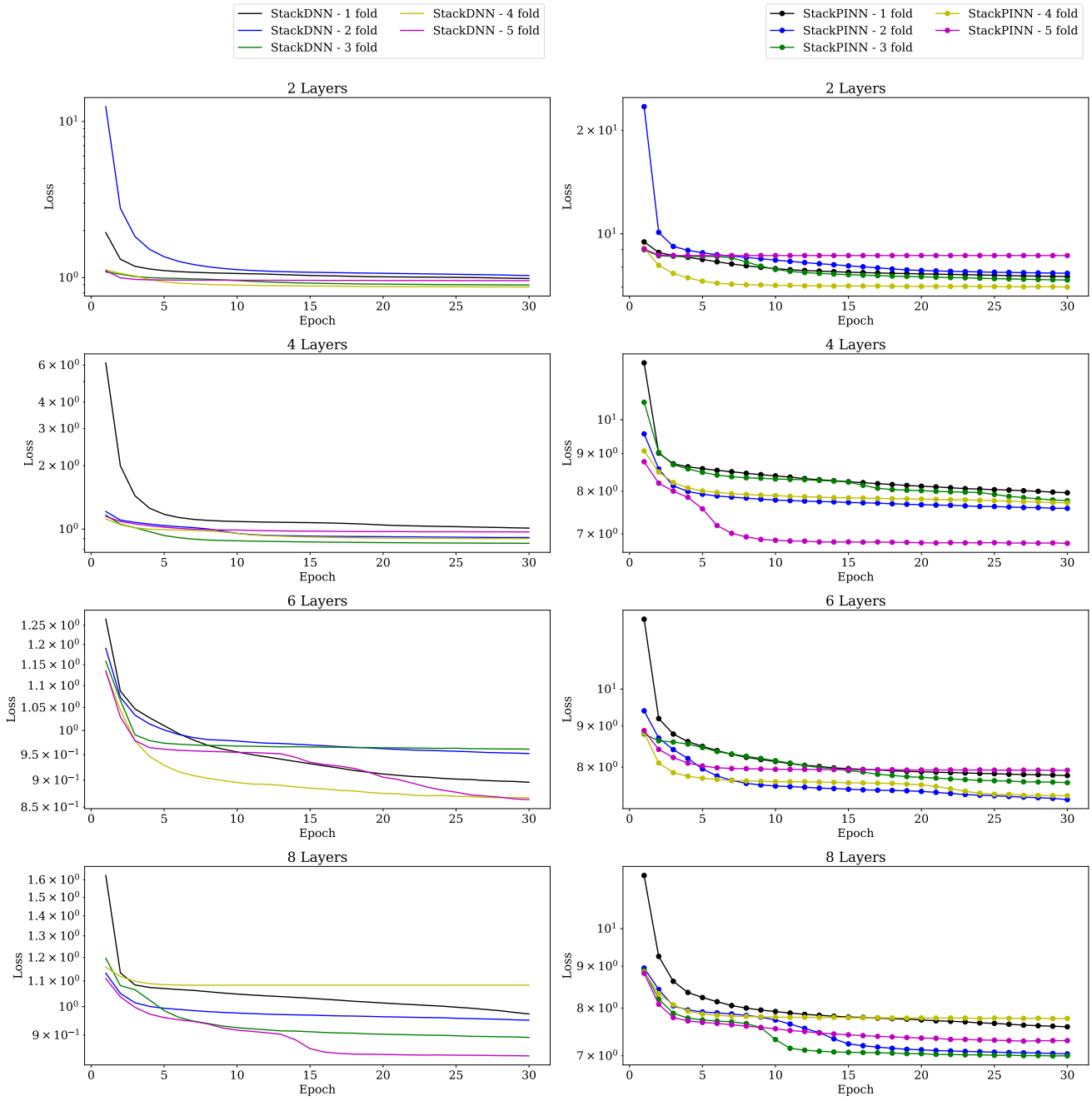

Figure 22. Training loss for StackDNN and StackPINN models in 5-Fold Cross-validation using 8235 samples and 30 epochs

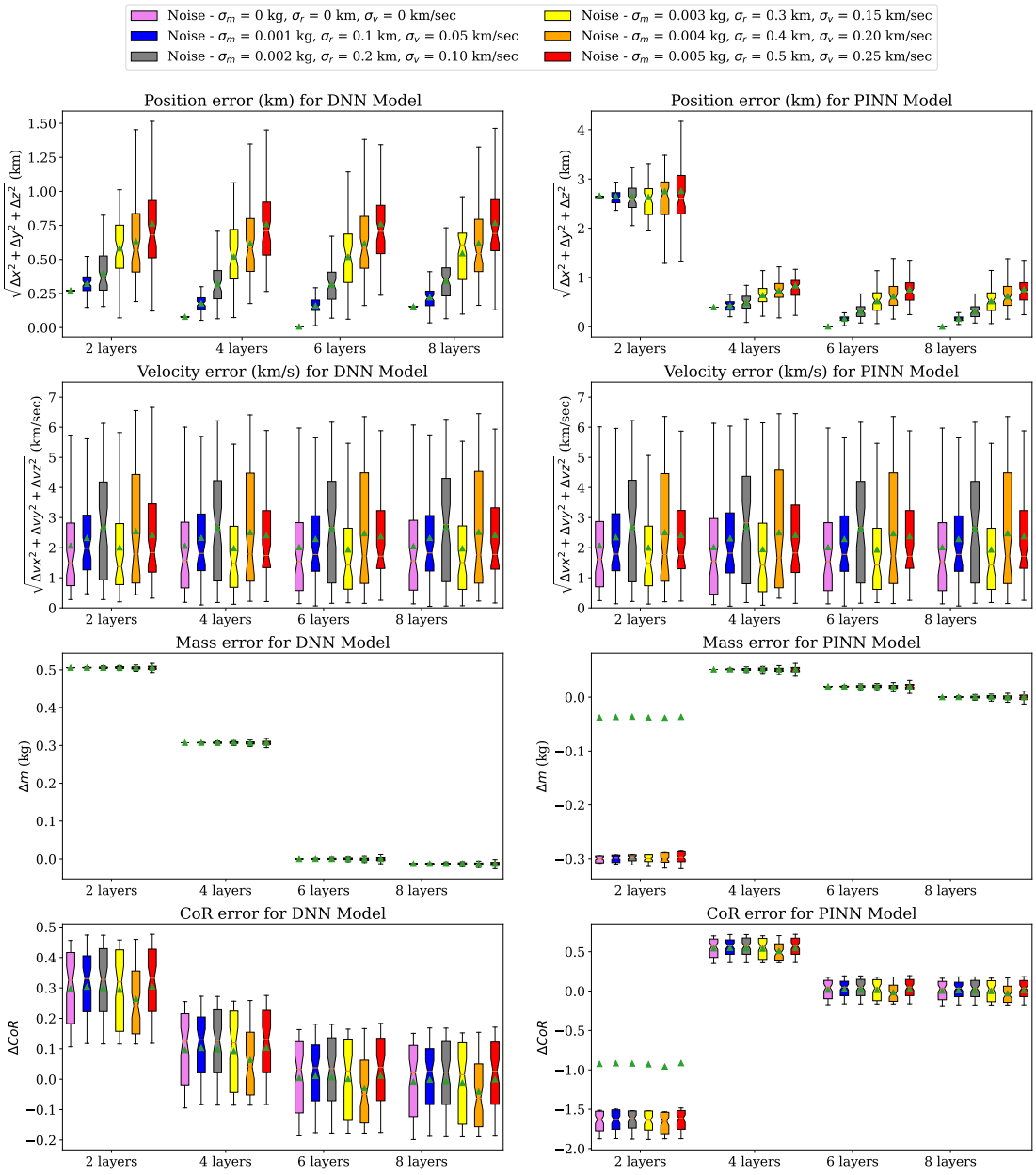

Figure 23. Error comparison of DNN and PINN models trained using 8235 samples and 30 epochs for multiple noise variations in LEMUR Satellites inelastic collision data

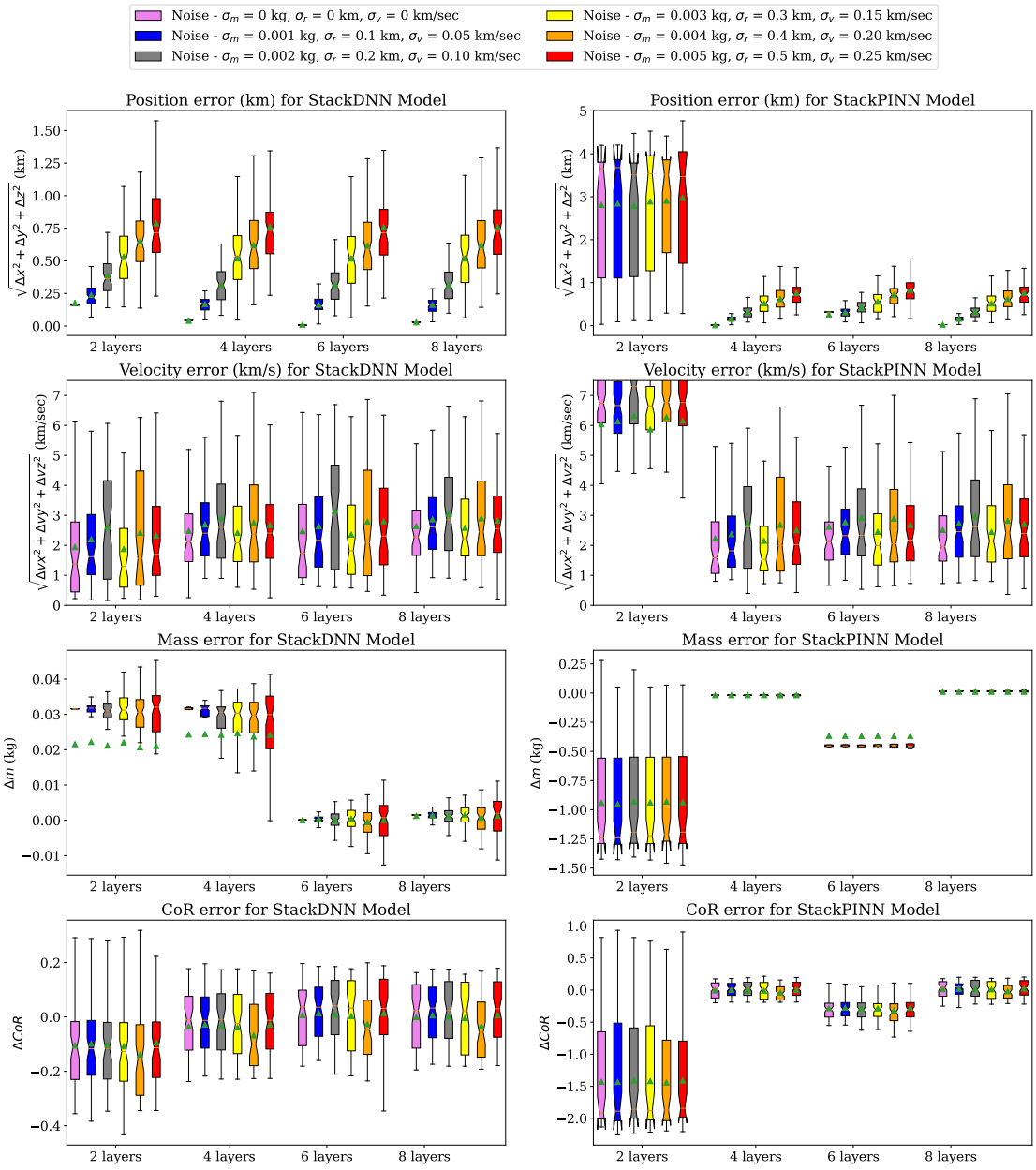

Figure 24. Error comparison of StackDNN and StackPINN models trained using 8235 samples and 30 epochs for multiple noise variations in LEMUR satellites inelastic collision data

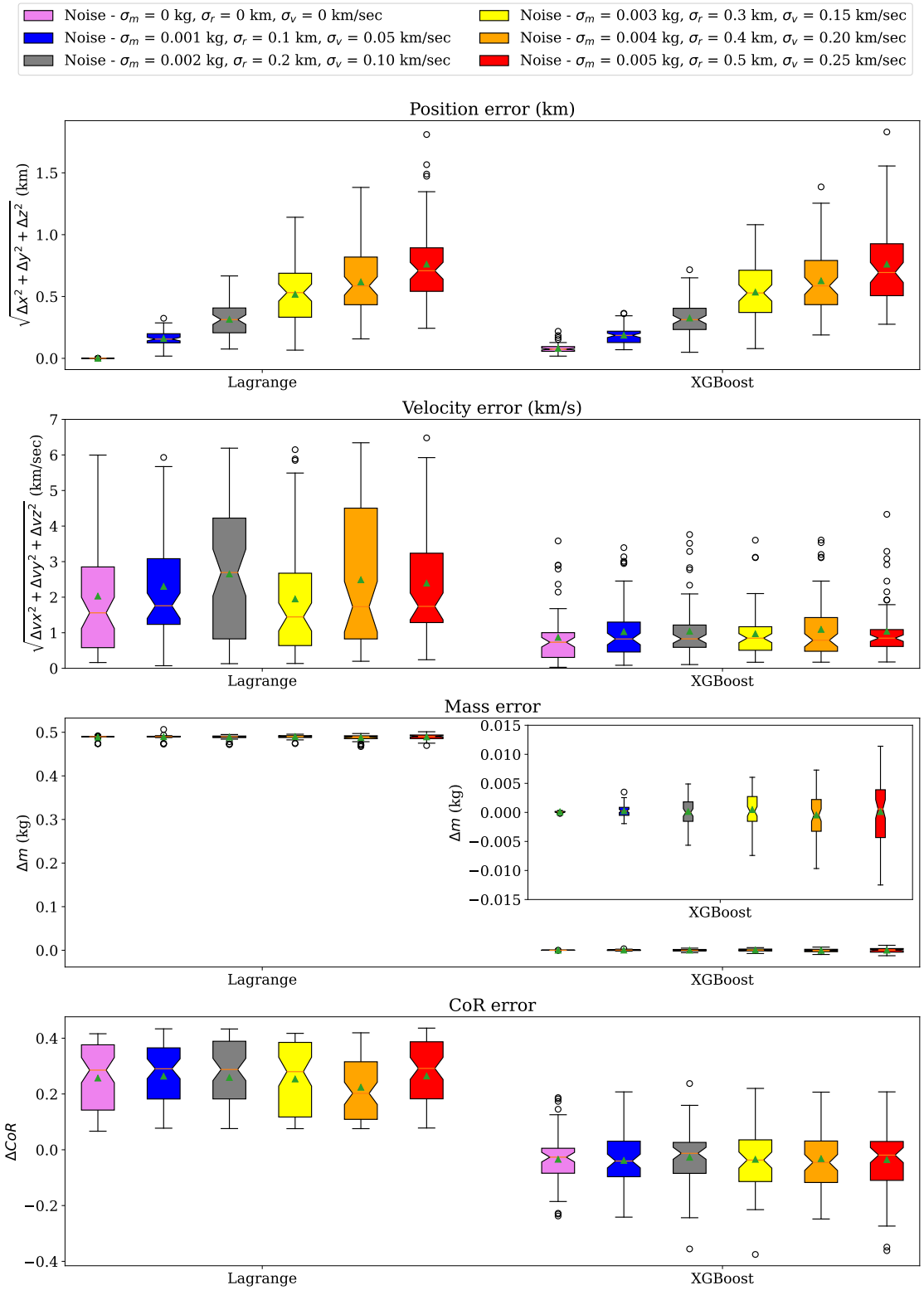

Figure 25. Error comparison of Lagrange and XGBoost models trained using 8235 samples for multiple noise variations in LEMUR satellites inelastic collision data

Models trained using 8235 samples and 50 epochs

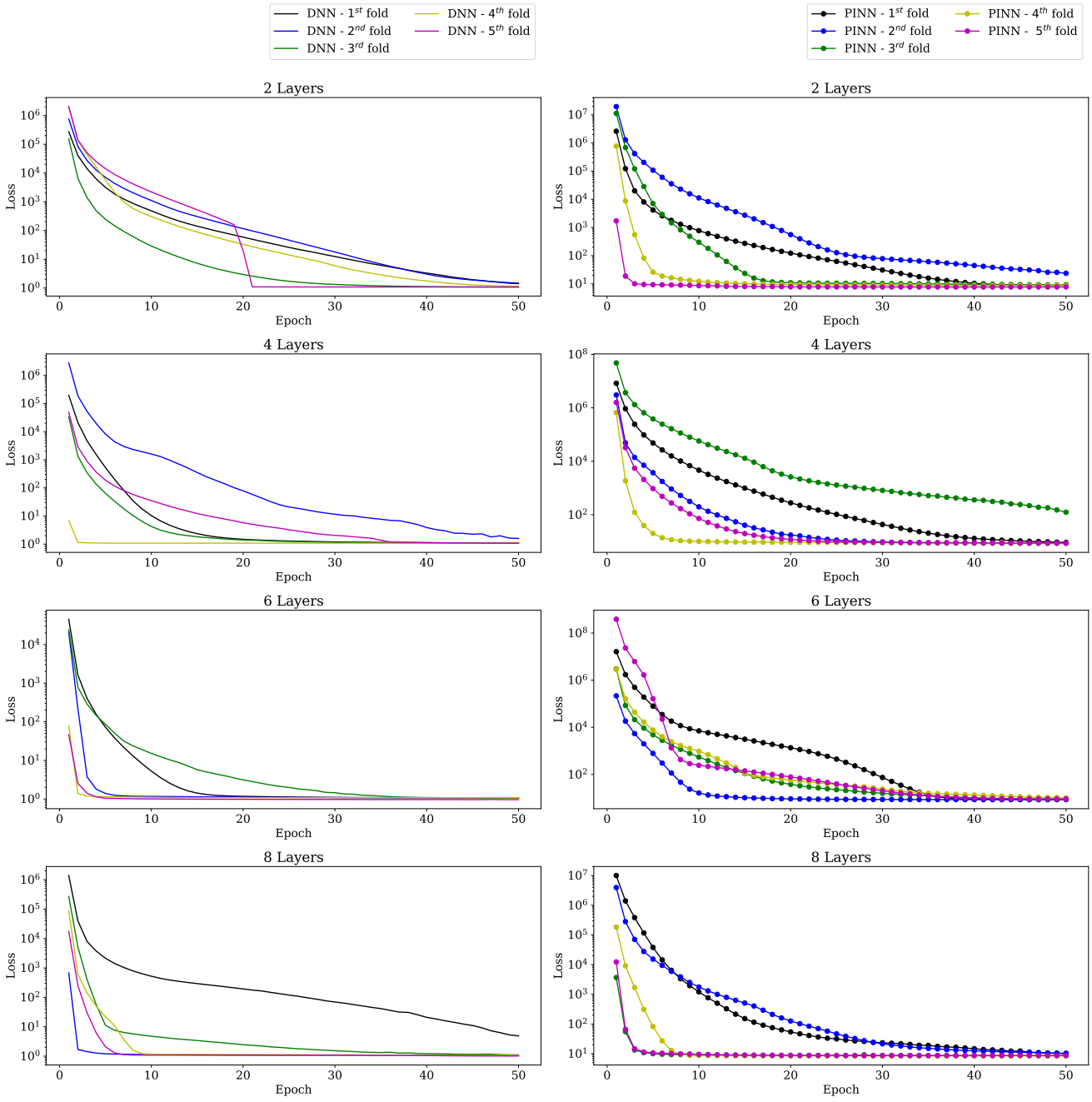

Figure 26. Training loss for DNN and PINN models in 5-Fold Cross-validation using 8235 samples and 50 epochs

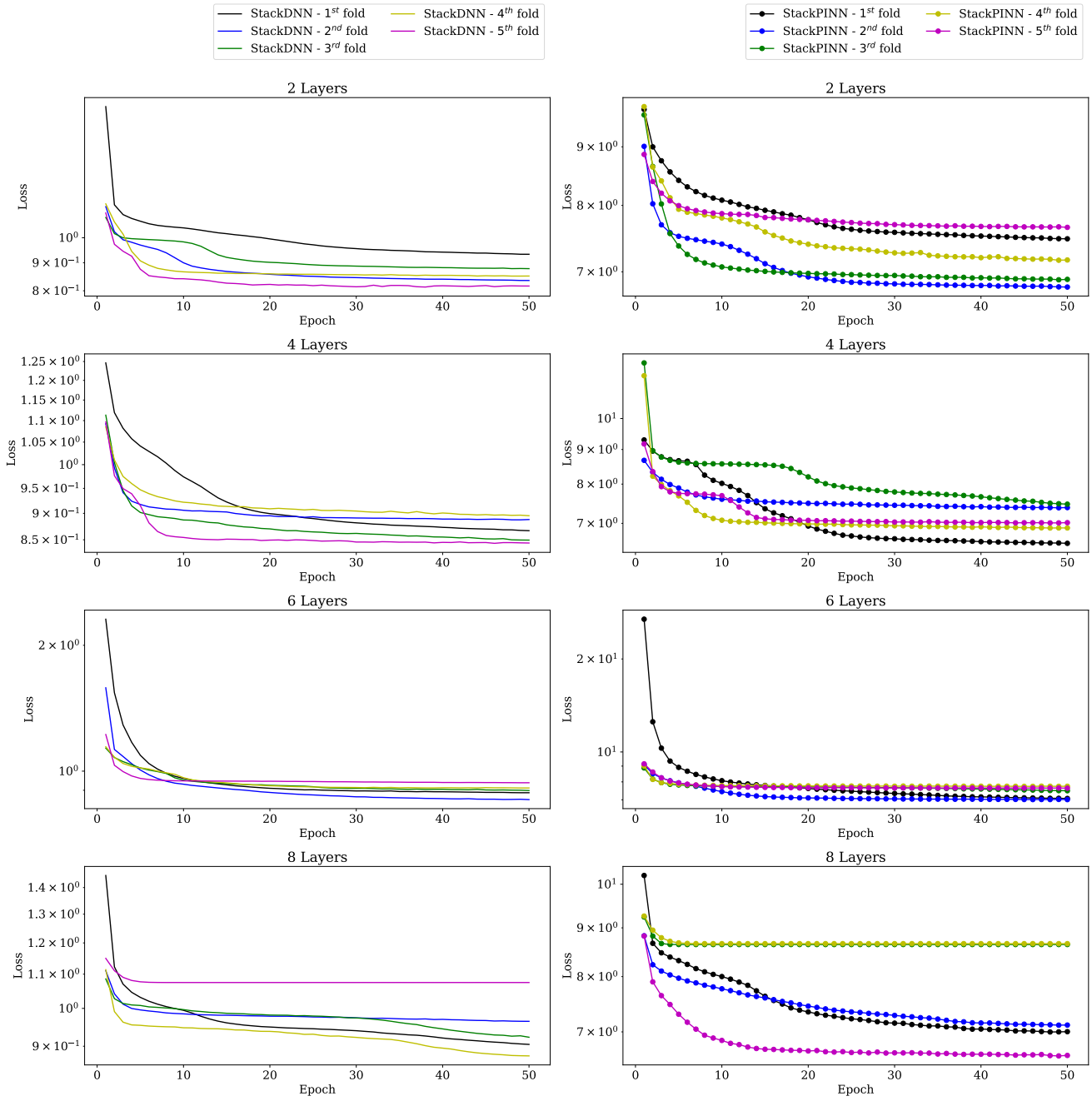

Figure 27. Training loss for StackDNN and StackPINN models in 5-Fold Cross-validation using 8235 samples and 50 epochs

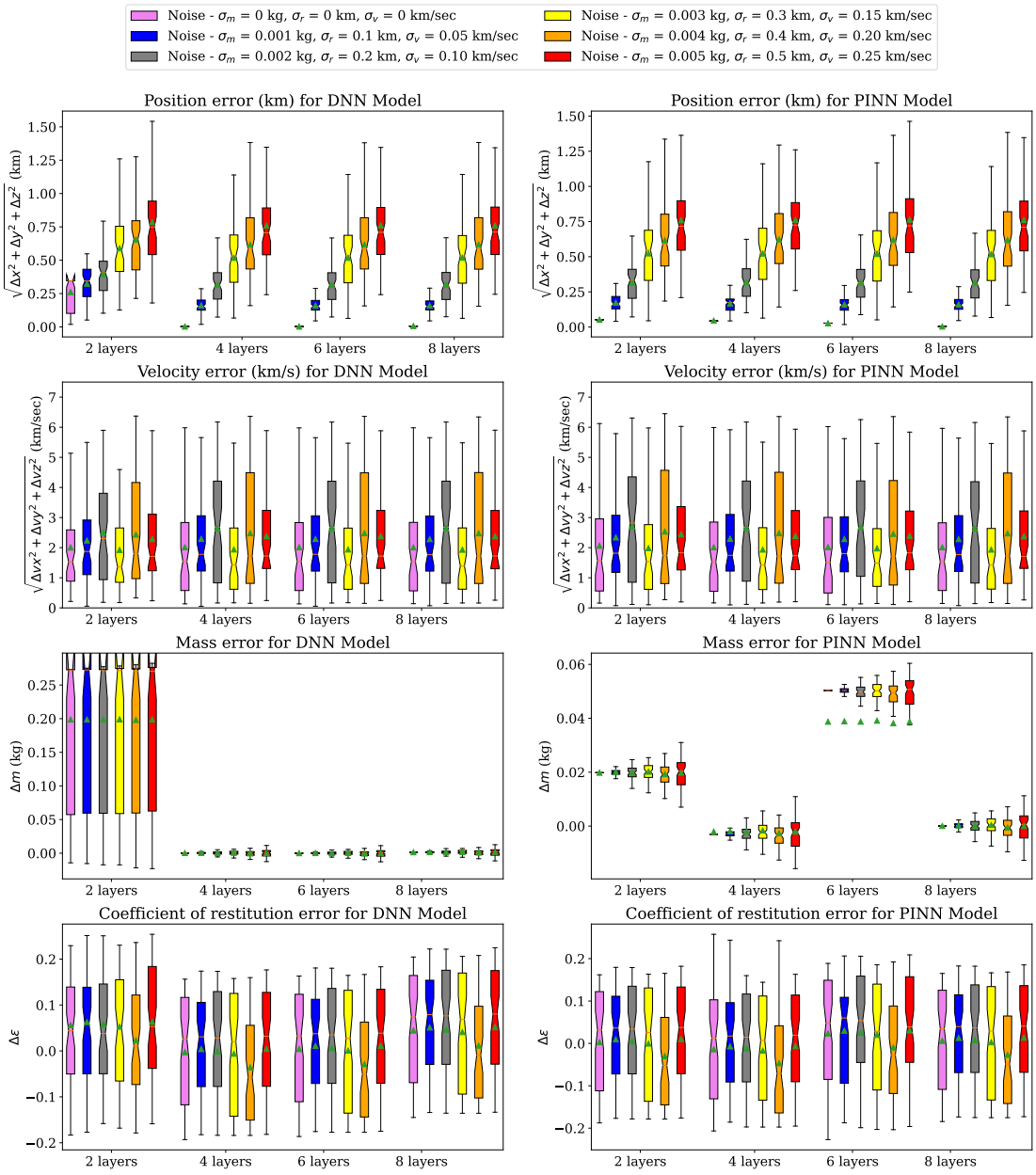

Figure 28. Error comparison of DNN and PINN models trained using 8235 samples and 50 epochs for multiple noise variations in LEMUR Satellites inelastic collision data

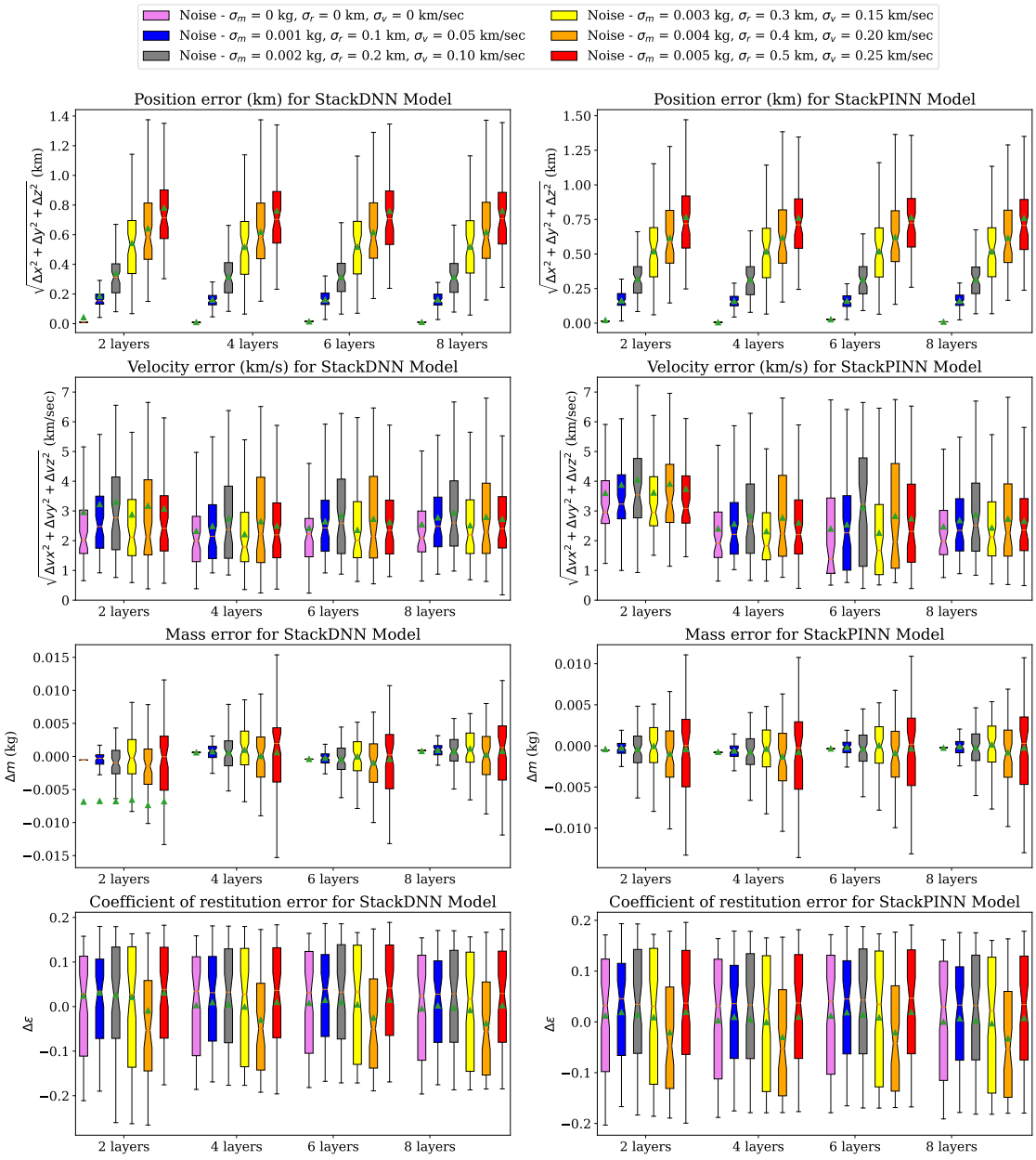

Figure 29. Error comparison of StackDNN and StackPINN models trained using 8235 samples and 50 epochs for multiple noise variations in LEMUR satellites inelastic collision data

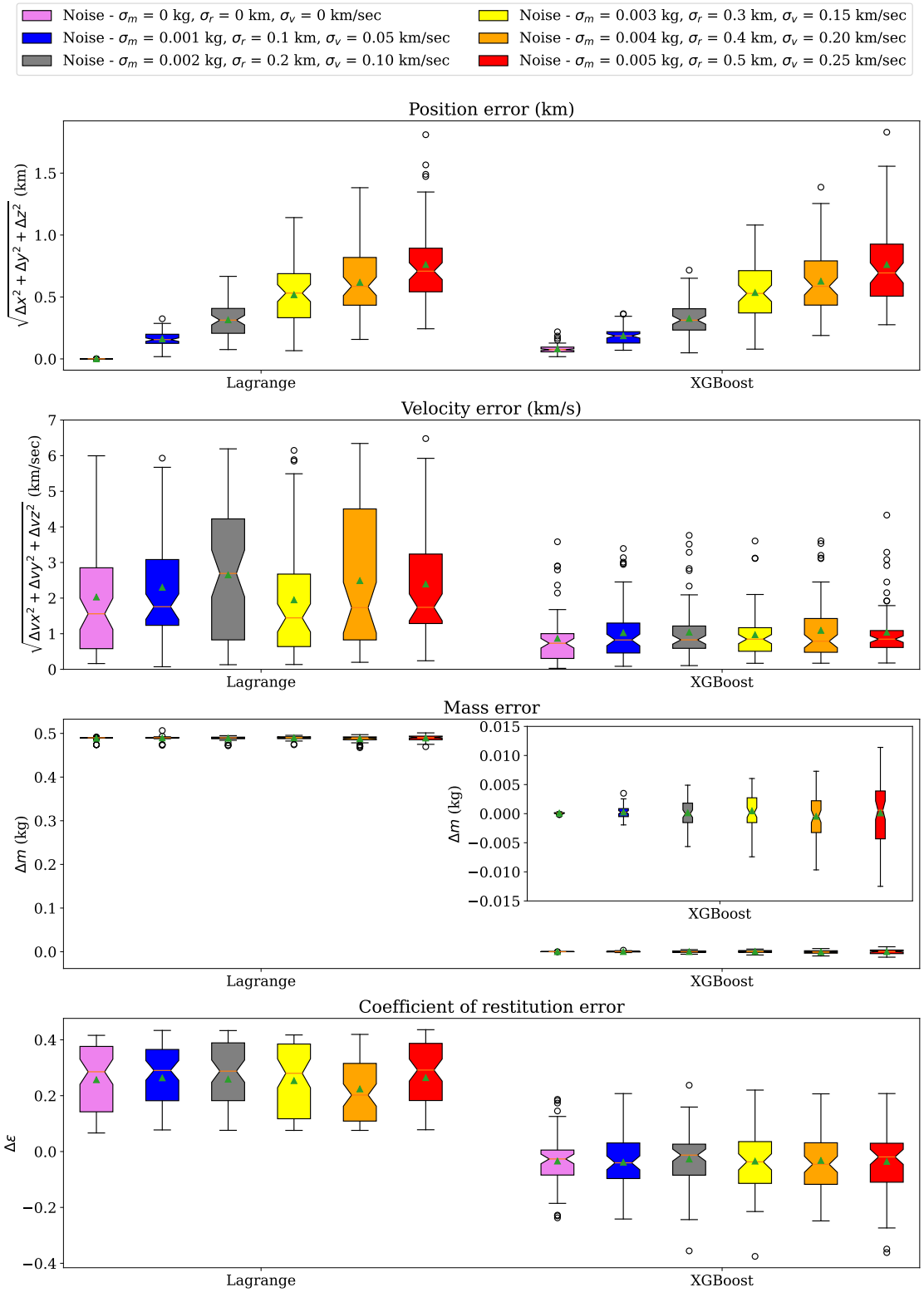

Figure 30. Error comparison of Lagrange and XGBoost models trained using 8235 samples for multiple noise variations in LEMUR satellites inelastic collision data

Results for noise variation in mass only (nominal noise for position and velocity)

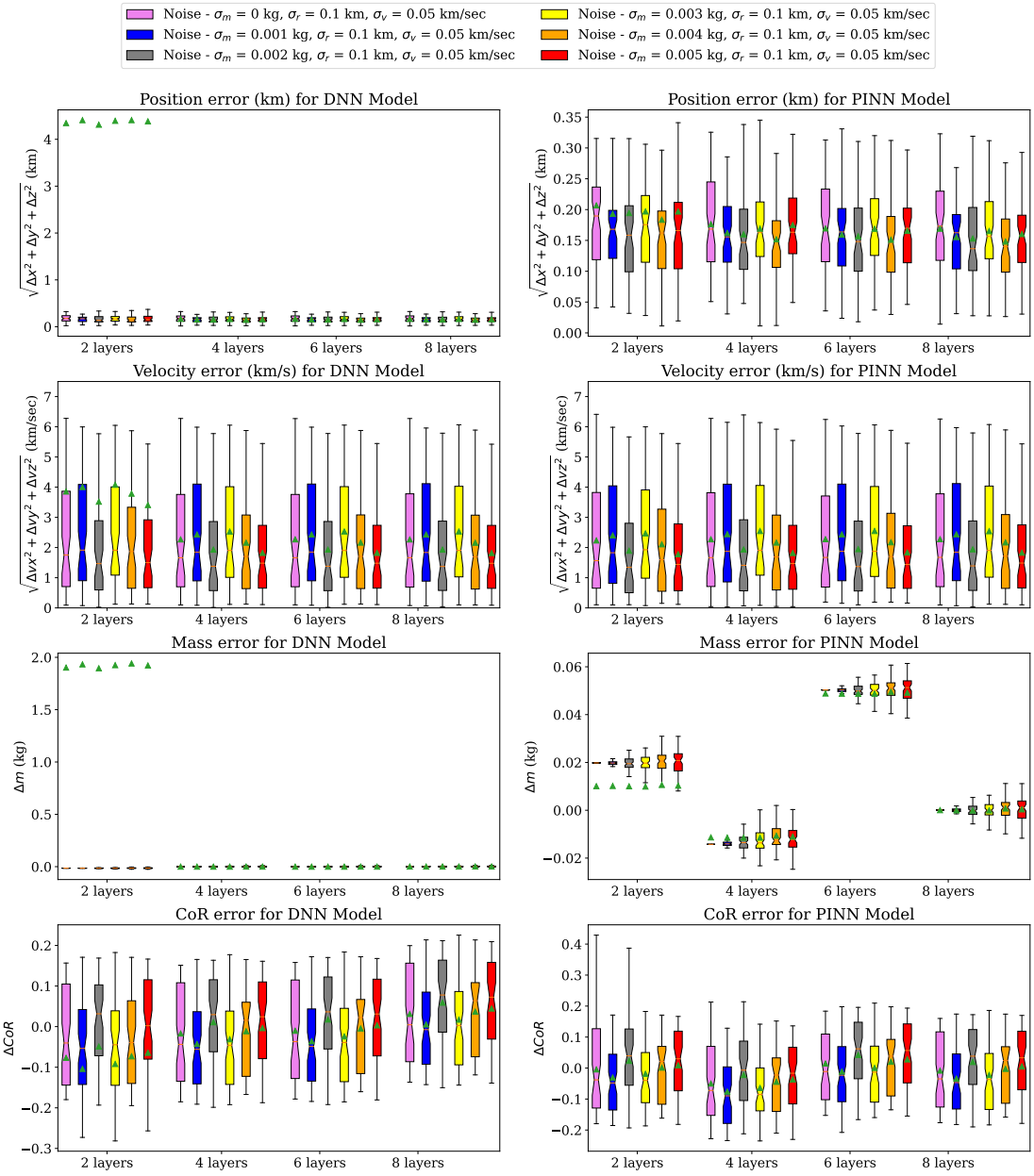

Figure 31. Error comparison of DNN and PINN models trained using 8235 samples and 50 epochs for MASS noise variations in LEMUR Satellites inelastic collision data

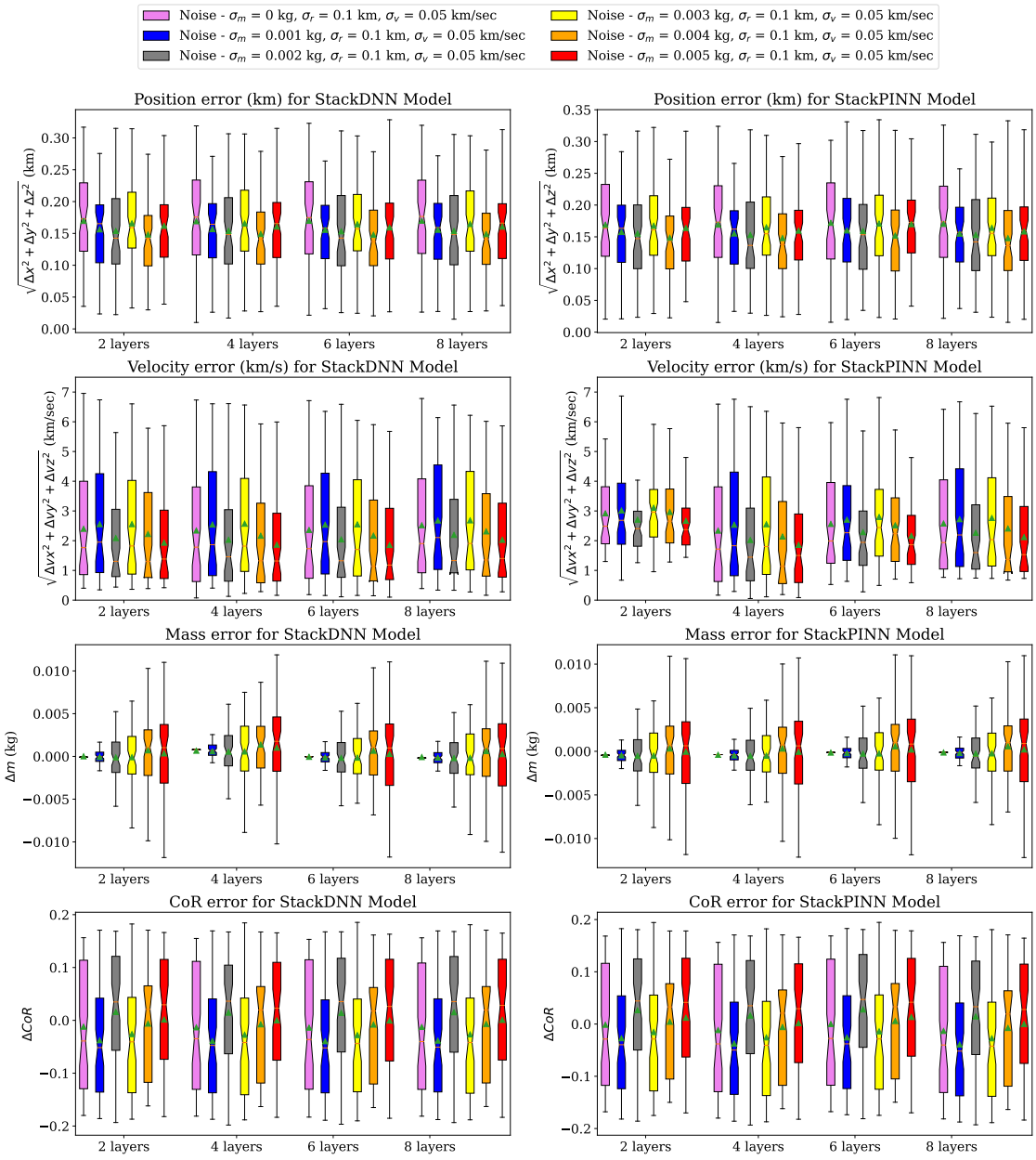

Figure 32. Error comparison of StackDNN and StackPINN models trained using 8235 samples and 50 epochs for MASS noise variations in LEMUR satellites inelastic collision data

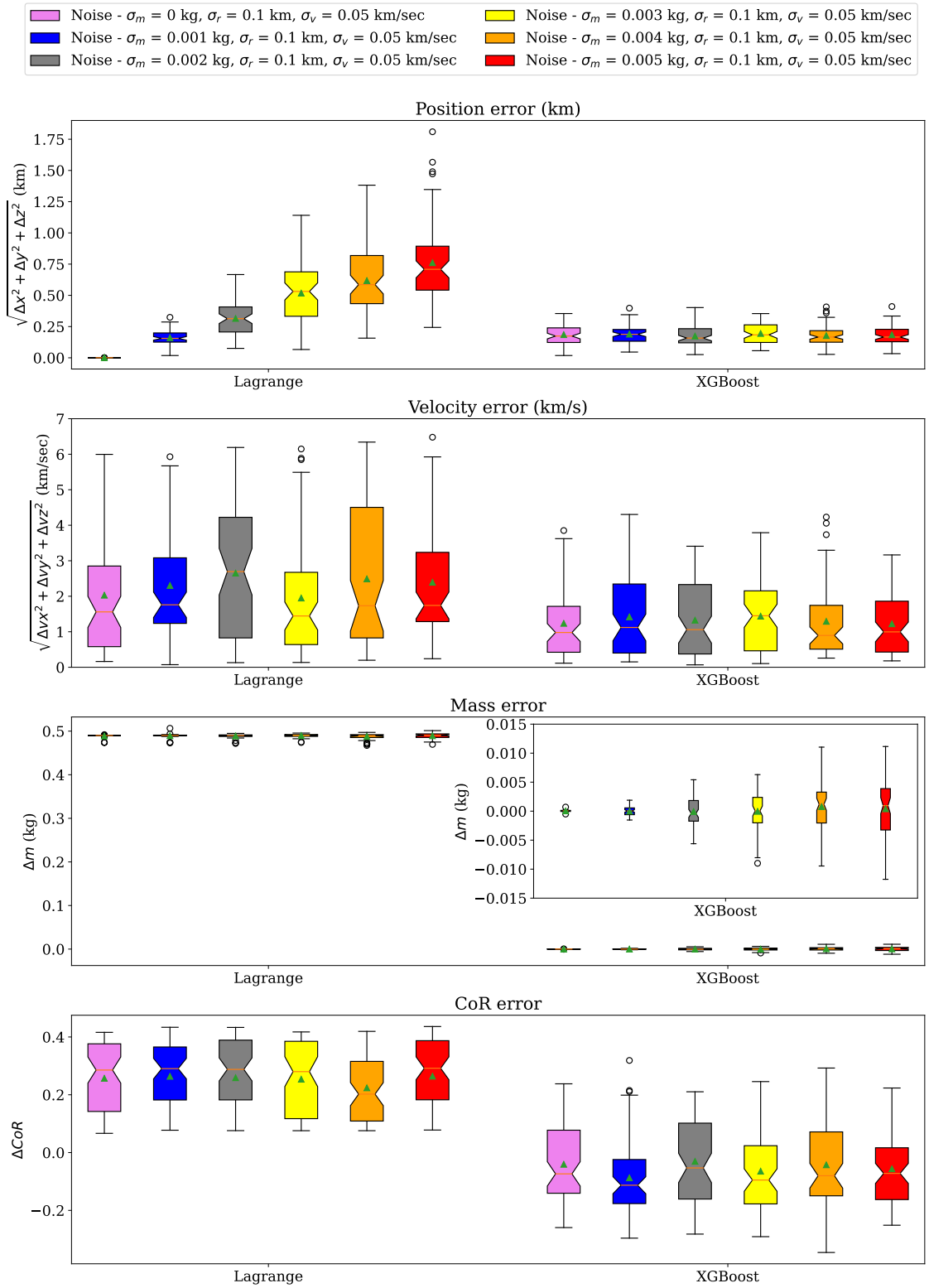

Figure 33. Error comparison of Lagrange and XGBoost models trained using 8235 samples for MASS noise variations in LEMUR satellites inelastic collision data

Results for noise variation in position only (nominal noise for mass and velocity)

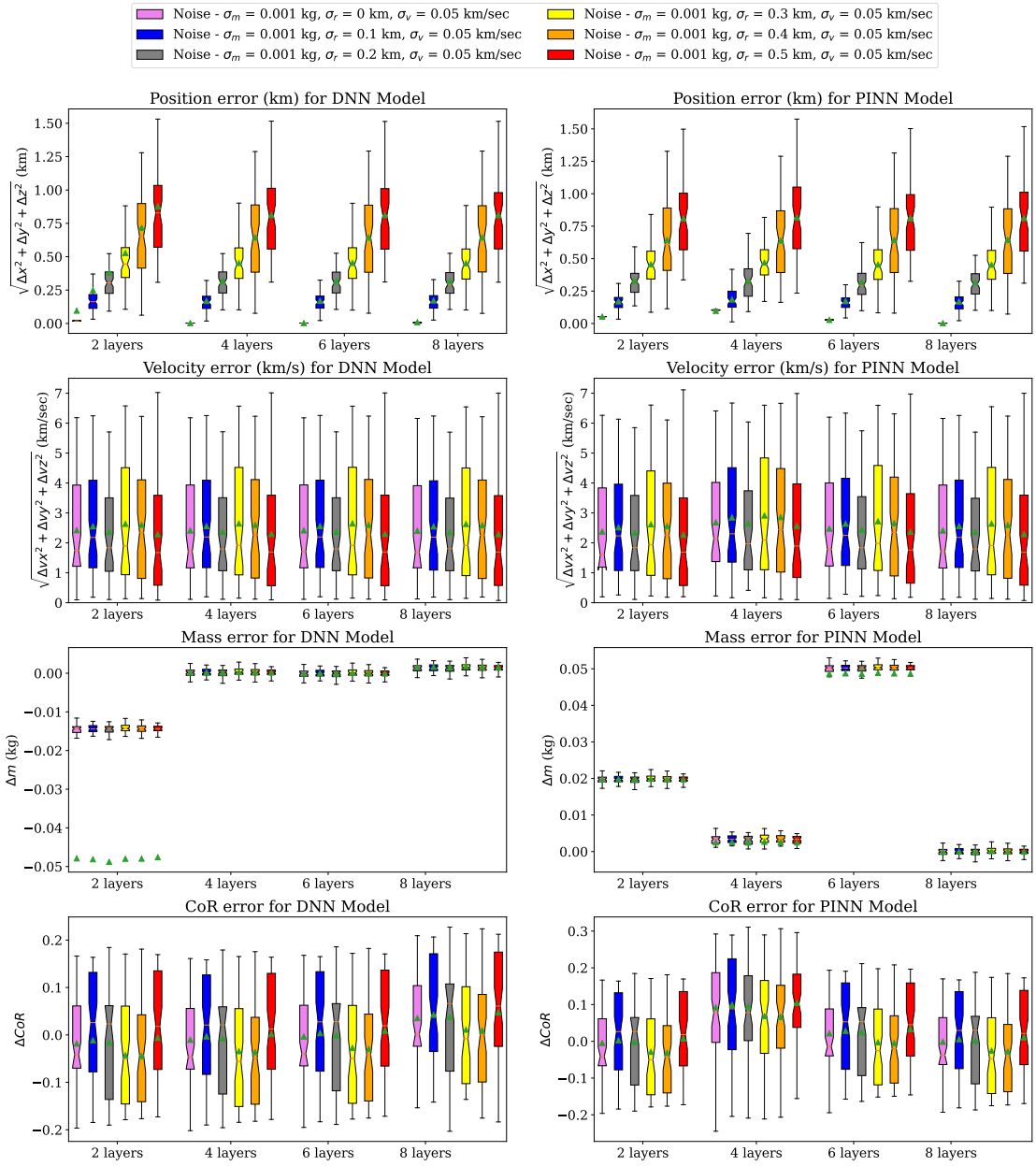

Figure 34. Error comparison of DNN and PINN models trained using 8235 samples and 50 epochs for POSITION noise variations in LEMUR Satellites inelastic collision data

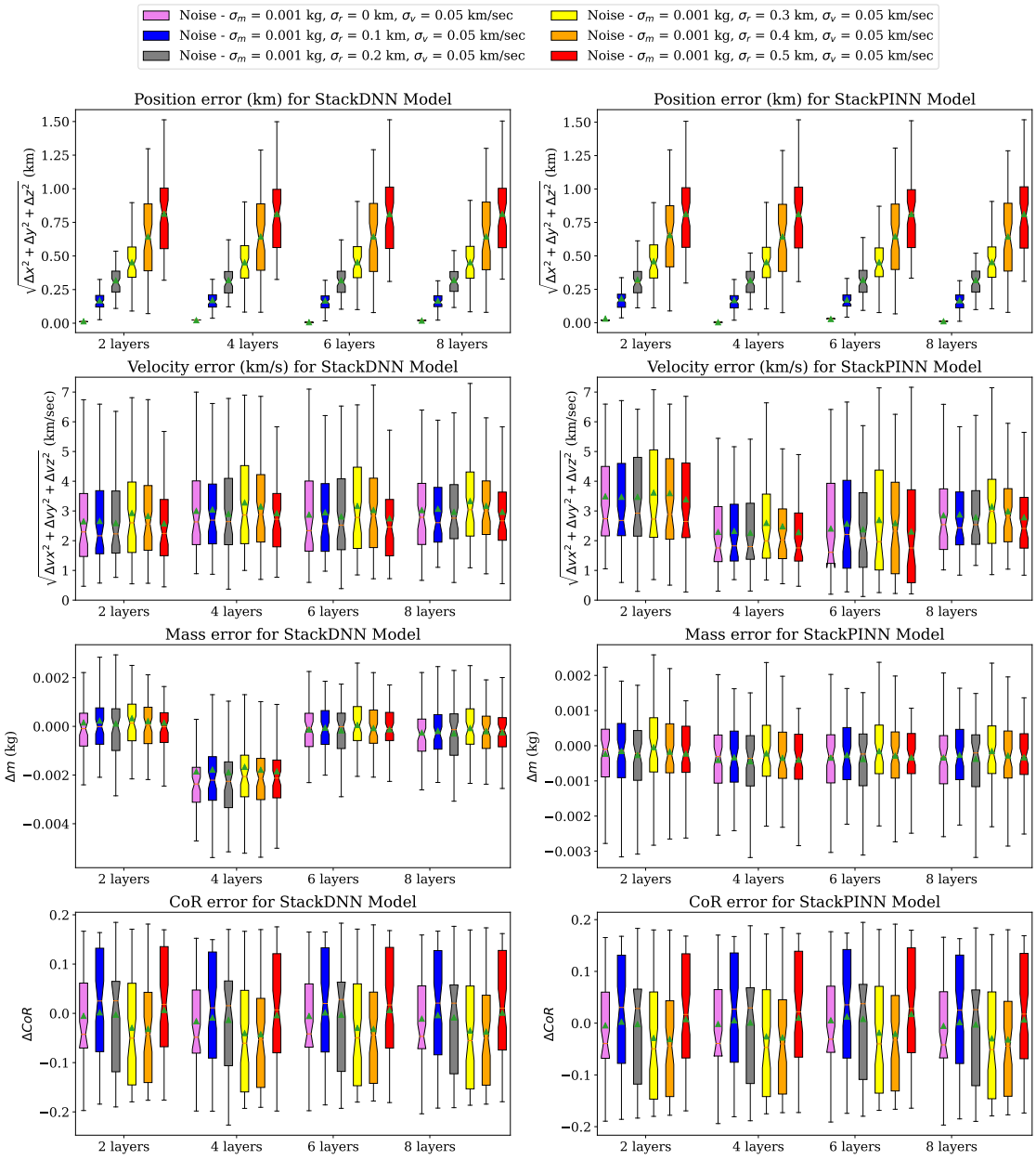

Figure 35. Error comparison of StackDNN and StackPINN models trained using 8235 samples and 50 epochs for POSITION noise variations in LEMUR satellites inelastic collision data

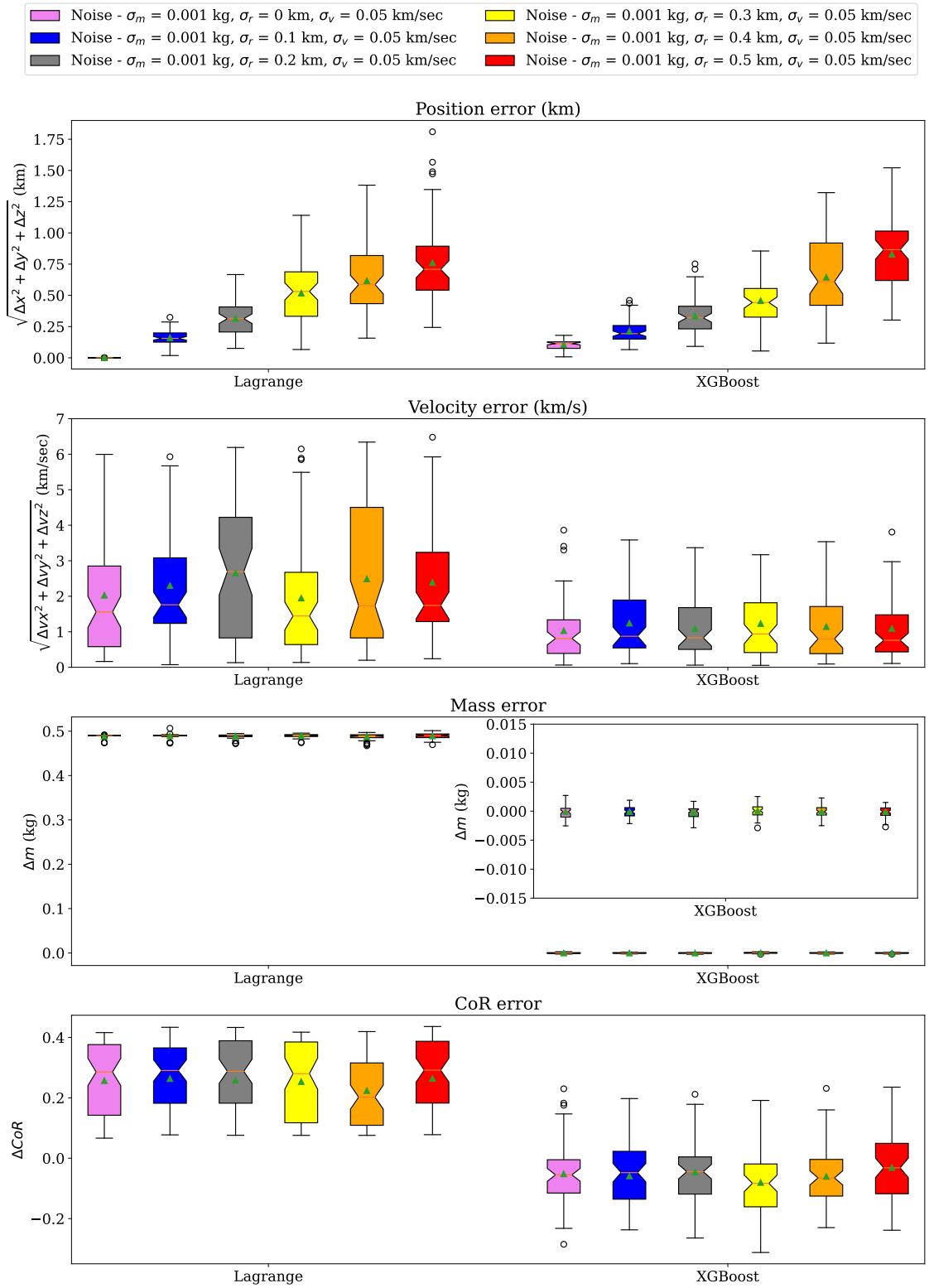

Figure 36. Error comparison of Lagrange and XGBoost models trained using 8235 samples for POSITION noise variations in LEMUR satellites inelastic collision data

Results for noise variation in velocity only (nominal noise for position and mass)

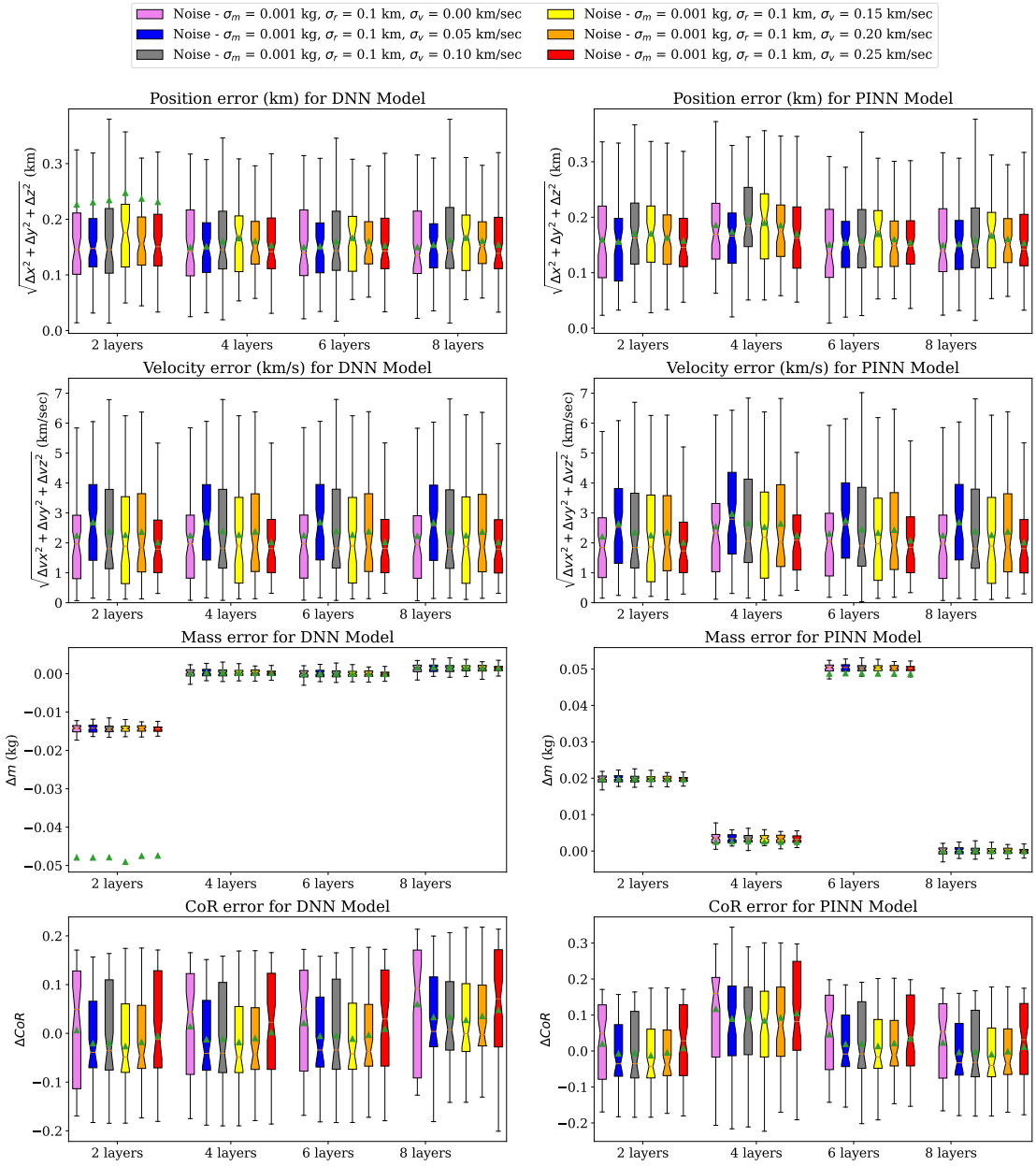

Figure 37. Error comparison of DNN and PINN models trained using 8235 samples and 50 epochs for VELOCITY noise variations in LEMUR Satellites inelastic collision data

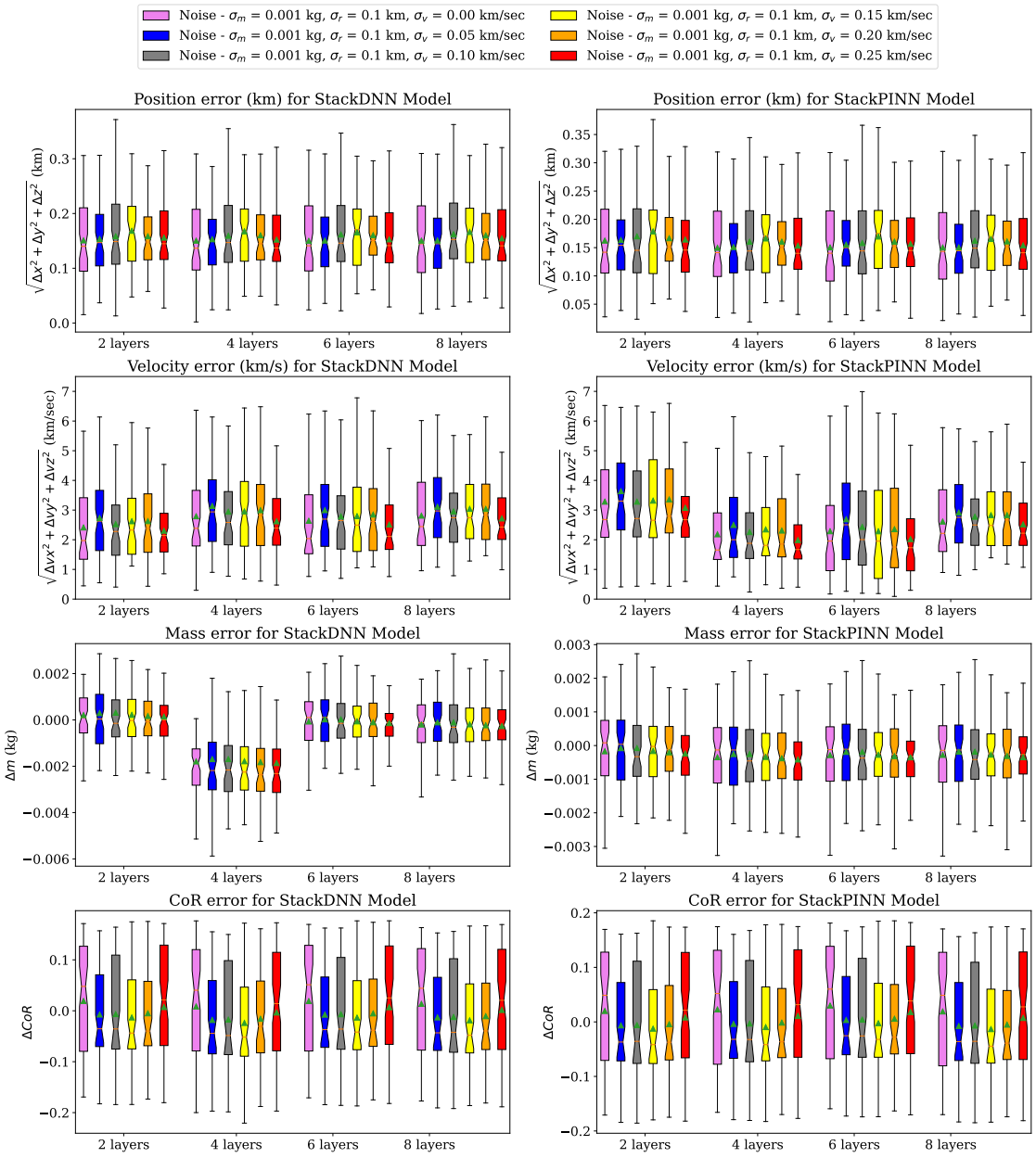

Figure 38. Error comparison of StackDNN and StackPINN models trained using 8235 samples and 50 epochs for VELOCITY noise variations in LEMUR satellites inelastic collision data

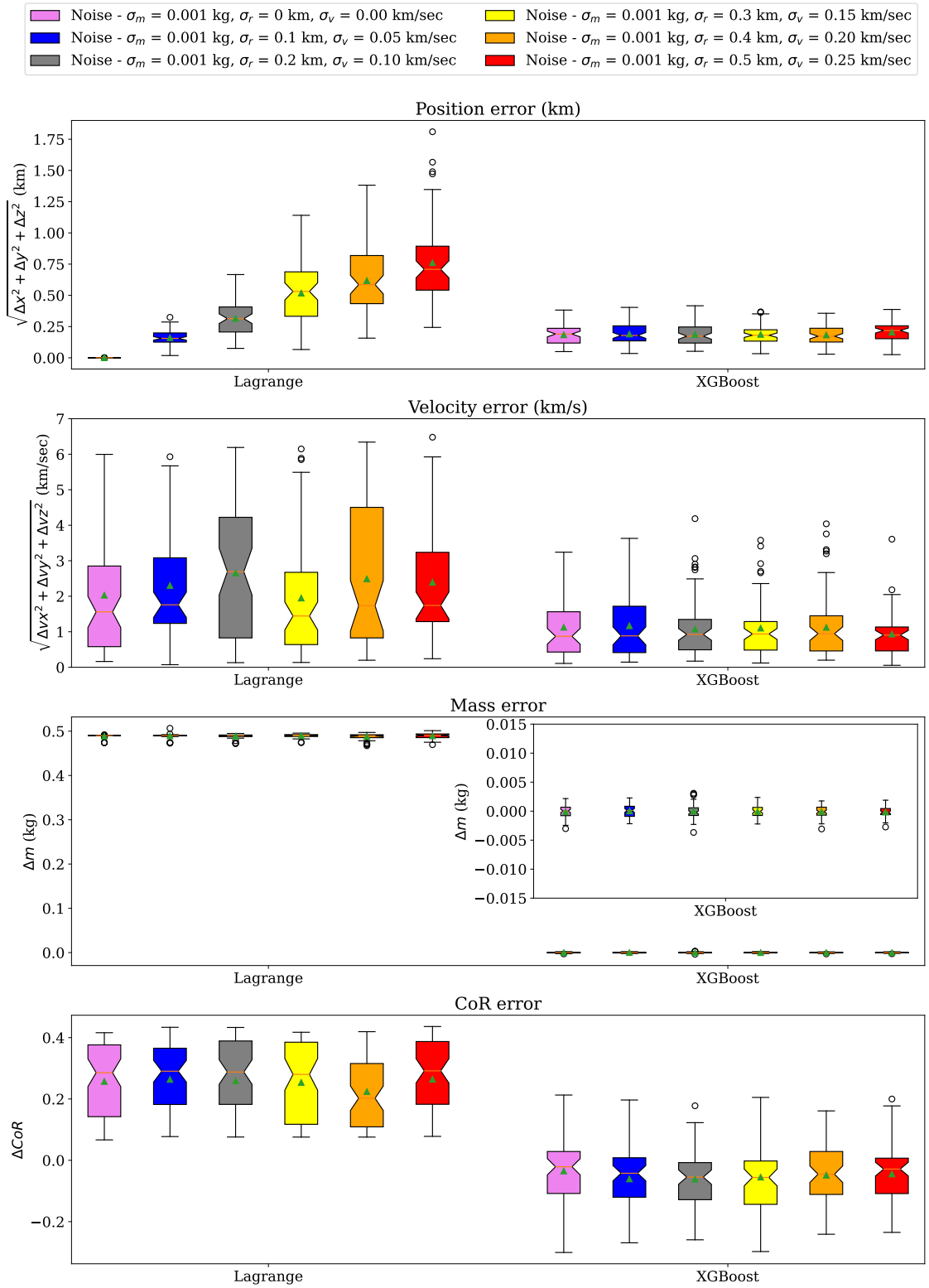

Figure 39. Error comparison of Lagrange and XGBoost models trained using 8235 samples for VELOCITY noise variations in LEMUR satellites inelastic collision data