

End to End Model update

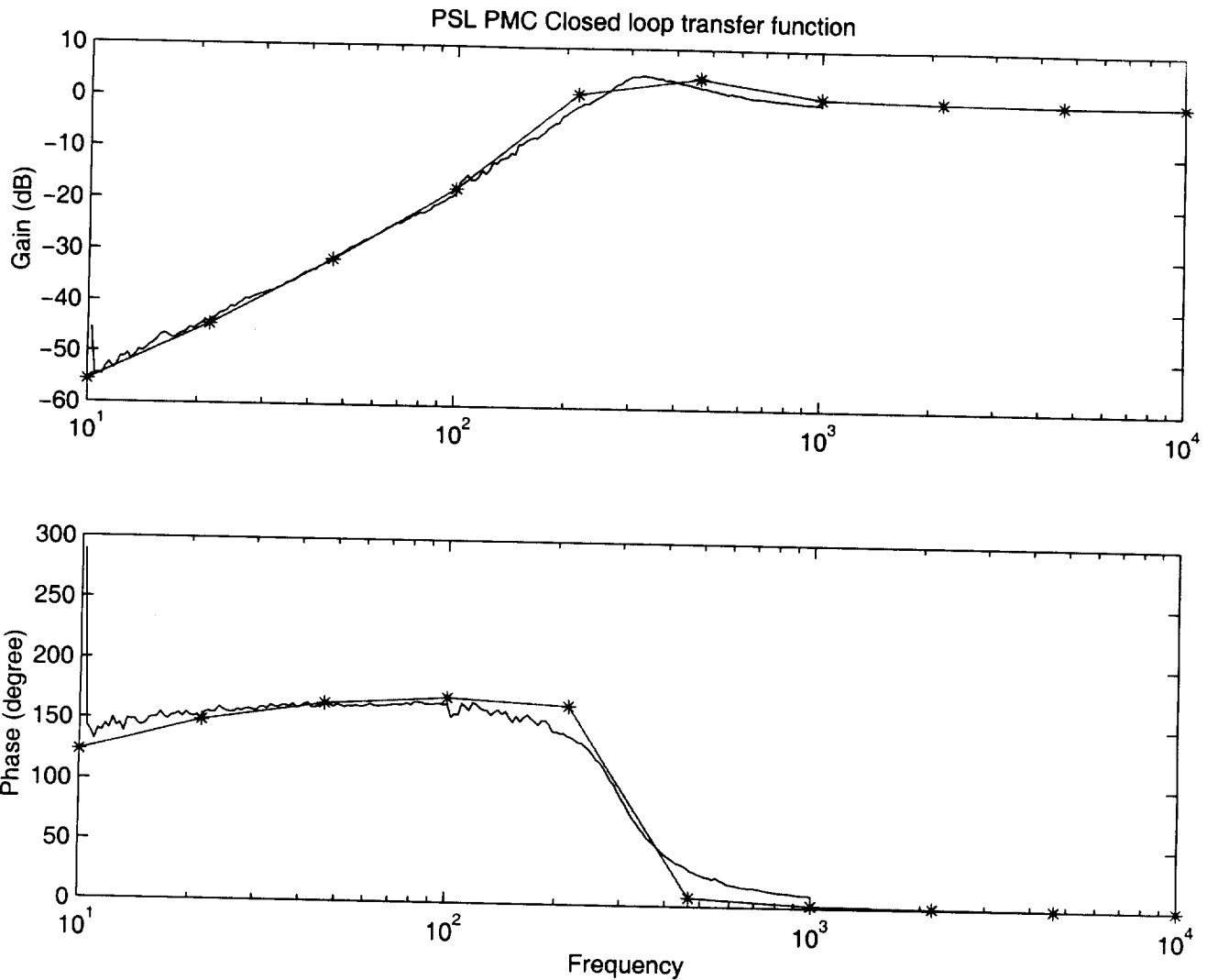
Hiro Yamamoto / LIGO Lab
LSC Meeting at Stanford on July 20, 1999

- LIGO Simulation development status
- Code development
- Mechanical Simulation Engine by G.Cella
- Future path



PMC transfer function

data vs model



MSE by G.Cella

Mechanical Simulation Engine

- C++ class to simulate mechanical structure in a modular way
- Building blocks
 - ›› Wire, Spring, Beam, RigidBody
 - ›› PositionActuator, ForceActuator
 - ›› PositionSensor, ForceSensor
 - ›› Frame, Clamp
- Simulation
 - ›› Add elements
 - ›› Define constraints
 - ›› Add sensors
 - ›› Find equilibrium (working) point
 - ›› Run in time domain or frequency domain

Future path goals and priorities

- **Detector Diagnostics**

- ›› Build all subsystems which have base minimum functionality
- ›› Catch up with the hardware development
 - model validation stage to diagnostic/design tool
- ›› Improve granularity of subsystems
- ›› Tools and interface for the use at the site
- ›› Thermal lensing effect
- ›› Improve optics simulation - FFT?

- **Data Analysis aid by pseudo data production**

- ›› Interface to the GW source input
- ›› Interface to produce Frame format data
- ›› All necessary noise sources
- ›› Speed up of in-clock state simulation

- **Future R&D**

- ›› Completion of MSE with GUI
- ›› Speed up of simulation - parallelization ?

- **Others**

- ›› Data visualization
- ›› Documentation

Note 1, Linda Turner, 08/17/99 08:51:45 PM
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