Questions for expert congress

Manipulability of Robotic Mechanisms (Yoshikawa)

- Summarize the key concepts

- What are the benefits of using normalized joint velocities?

- Prepare the PUMA robot example for explaining the concept with a 6 DoF manipulator

- Extend the concept to the 7 DoF human arm. Reason if humans use the concept of manipulability.

- What are possible downsides / necessary extensions to manipulability for robotic systems? Think of possible problems during operation.

Dexterity Measures for the Design and Control of Kinematically Redundant Manipulators (Klein)

- Summarize the key concepts

- What are the consequences of kinematic redundancy?

- What is the influence of the minimum singular value?

- Give examples where some of the criteria are better or worse than the others.

- Which concepts are humans most likely to use?

Architecture Singularities of Platform Manipulators (Ma)

- Summarize the key concepts (you can also use the book for help)

- What are the main differences between an open chain and closed chain kinematics?

- Which type(s) of singularities are also present in serial chain manipulators?

- How can formulation singularities be avoided? Give alternative formulation concepts

- Do the architectural singularities apply to Delta robots?