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Please register my entry under

(a) Diagnostics/MFE

(b) Plasma material interaction/Divertor:

It seems clear that only part of the physics controlling PMI/Divertor physics has been identified. The ability to project the behaviour of future devices requires knowledge of the controlling processes. At a minimum the level of (partial) understanding must be sufficient to establish how to proceed empirically, which requires knowing how to scale. At present even that level of understanding of PMI/Divertor physics is largely lacking. Present PMI/Divertor physics diagnostic capability is seriously inadequate and is the main impediment to the identification of missing edge physics. However, if all the needed funds were made available today to acquire/develop the required diagnostics there exists insufficient special-knowledge manpower to spend such funds effectively and efficiently. The critical requirement today is therefore the education/training of experimentalists with special knowledge in the diagnosis of PMI and Divertor plasmas.

Depending on how you define "national labs", I would say yes or no to whether the national labs can help develop workforce: I believe that the graduate students and post-docs should, for the most part, receive their education on MFE devices which are able to create plasma conditions similar to those in the present day major research devices. Ideally a substantial fraction would work on site on one of the major MFE research devices, although registered at a university perhaps far away. Able research professors, regardless of the location of their university, should be encouraged to supervise graduate students and post-docs working on major MFE research devices. The major devices are greatly under-utilized by universities; they can provide research opportunities for graduate students and post-docs well beyond what is available at most universities. Perhaps surprisingly, the major research tokamaks - in my experience - give favored treatment to graduate students, favored relative to their own staff. Certainly surprising is that so few universities/professors take advantage of such opportunities. It's presently a lose-lose situation all round but could and should become win-win.