

Advanced divertor study will provide new options of the divertor configuration:

**Physics advantages and Engineering issues of "Short Super-X divertor" (short SXD)**

has been studied in SlimCS (FP: 3GW,  $R_p$ : 5.5m,  $I_p$ : 16.7MA).

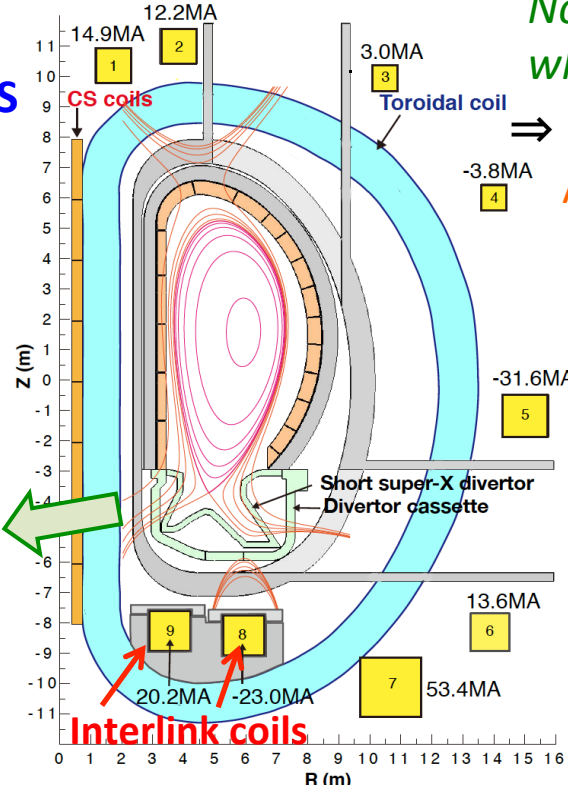
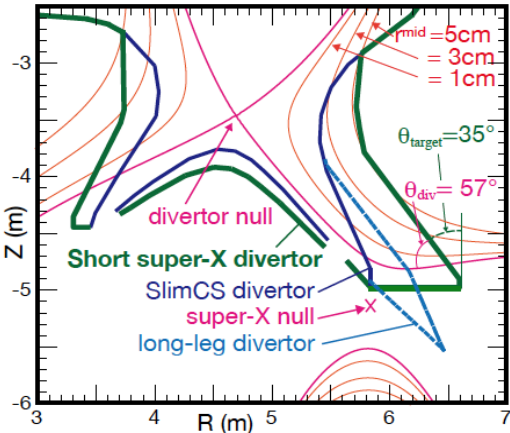
- Interlink divertor coils are required: Nb<sub>3</sub>Al SC is preferable for React&Wind  
 ⇒ SC filament size should be reduced, and EM-force on IL-coil support is required.
- $f_{exp}$  and  $L_{//}$  to target are increased along the divertor leg: max. 19 times and 2 times.
- Power handling were investigated by SONIC for  $P_{FP}$  = 3GW reactor ( $P_{out}$  = 500MW)  
 ⇒ Radiative area is narrow poloidally, and efficient to produce full detachment:

Note: Total peak heat load is  $\sim 10\text{MWm}^{-2}$ , where Surface recombination is dominant.

⇒ Conventional divertor is the first choice: Advanced div. is studied for alternative.

**2 Interlink coil arrange for SlimCS**

**Magnetic configuration of short-SXD and Conventional divertors**



**Radiation distribution in short-SXD**

