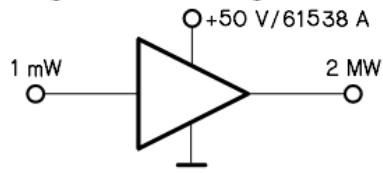


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ESS-Bilbao new developments in RFQ coupler and a novel SSPA power source for our ECR ION source

Wednesday, September 14, 2022 4:10 PM (25 minutes)

ESS-Bilbao is a leading proton science research center in Spain that carries out different projects in particle accelerator field. One of the recently accomplished projects is a novel solid-state based RF power source as a replacement for an old klystron of the ECR ION Source (ISHP) that will feed an RFQ, also designed and developed at ESS-Bilbao, to accelerate proton beam up to 3MeV at its output. The new SSPA RF power source is equipped with a cRIO controller and a pre-distortion technique is used to remove overshoot and compensate pulse droop thus generating a very flat 1kW RF pulse at 2.7GHz.

Another ongoing project is design and fabrication of two power couplers for the RFQ. The couplers are based on 4-1/2" coaxial ending in DN40 ports. They handle 300kW peak power at 352MHz.

Design, implementation and test results of the above projects will be presented, plus briefly mentioning of other ongoing projects at ESS-Bilbao.

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