

Future monolithic pixel developments

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Recently monolithic silicon sensors integrating sensor and readout in one chip fabricated in standard CMOS technologies have been selected for STAR and ALICE where they offer low mass, high granularity, low cost and low power density. Major requirements for monolithic CMOS sensors to be adopted in more aggressive applications like FCC, are increased radiation tolerance and speed maintaining low power consumption. The key challenge here is to fully deplete the sensitive layer maintaining a low capacitance collection electrode. Wafer-scale integration would also be desirable to cover large areas and is in principle accessible through stitching. These challenges will be discussed as well as some promising developments and ideas to meet these requirements.

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