APPENDIX A
Abbreviations

ADC	Analog to Digital Converter
APD	Active Pixel Detector
ASIC	Application Specific Integrated Circuit
BNL	Brookhaven National Laboratory
CCD	Charge Coupled Device
CMOS	Complementary-MOS
EMC	EletroMagnetic Calorimeter
GPIB	General Purpose Interface Board
HV	High Voltage
LASER	Light Amplification Stimulated by Emission of Radiation
LHC	Large Hadron Collider, at CERN
MIP	Minimum ionizing particle
MOS	Metal-Oxide-Semiconductor
NTD	Neutron Transmutation Doped, silicon type.
PASA	Pre-amplifier/Shaper
PC-board	Printed Circuit board
QCD	Quantum ChronoDynamics
QGP	Quark-Gluon Plasma
RDO	ReadOut board
RHIC	Relativistic Heavy-Ion Collider, at BNL
SBSD	Surface Barrier Silicon Detector
SCA	Switched-Capacitor Array
SDD	Silicon Drift Detector
STAR	Solenoidal Tracker at RHIC
SVT	Silicon Vertex Tracker
TOF	Time Of Flight , detector
TPC	Time Projection Chamber

APPENDIX B
Some constants and properties of semiconductors

Some physical properties of silicon and germanium

	Si	Ge
Atomic number Z	14	32
Atomic weight A	28.1	72.6
Density [g/cm^2]	2.33	5.32
Dielectric constant (relative)	11.9	16.0
Intrinsic resistivity (300K) [Ωcm]	230000	45
Energy gap (300K) [eV]	1.1	0.7
Energy gap (0K) [eV]	1.21	0.785
Electron mobility (300K) [cm^2/Vs]	1350	3900
Hole mobility (300K) [cm^2/Vs]	480	1900
Lattice constant (300K)[Å]	5.4309	5.6461

APPENDIX C
STAR/SVT –SDD dimensions & specifications

The STAR silicon drift detectors were fabricated using a 3-inch diameter, *280±20-μm* thick, double sided polished n-type Wacker silicon wafer. The silicon wafers were doped using the neutron transmutation process (NTD) and the resistivity of the wafer was *3-kΩ·cm*. The minority carrier lifetime after oxidation was estimated to be about *3-msec.*, the interface state density was $1.3\times10^{10}/cm^2$ and the oxide charge density about $2.1\times10^{11}/cm^2$.

Single detector dimensions

Detector total area:	63×63 mm = 3969 mm^2
Detector area mounted in the SVT:	3796 mm^2
Detector active area:	2* 177.21 mm^2 = 3554.4
Inactive area:	241.6 mm^2 – 6.4 %

Cathodes:

Pitch:	135 μm
Width of the implanted strip:	99 μm
Width of the aluminum overlay:	120 μm

Guard lines:

Pitch:	100 μm
Width of the implanted strip:	10 μm
Width of the aluminum overlay:	60 μm

Injector line positions:

1^{st}:	2.285 mm
2^{nd}:	9.975 mm
3^{rd}:	19.695 mm
4^{th}:	29.955 mm

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