SiNQ: 493nm – 1550nm PDK

WAVE PHOTONICS

"We see this innovative new process as a powerful industrial tool for ensuring yield and scale-up of product designs for quantum applications"

- CSA Catapult

SiNQ – A Silicon Nitride Process and PDK for Quantum Photonics

Wave Photonics offers a 200nm SiN PDK on a process established at CORNERSTONE and designed for quantum applications. Users can access the process via the world's most expansive PDK, which contains **1,056 elements** and covers **33 wavelengths** from 493nm – 1550nm. It targets the transition wavelengths of a huge array of quantum systems, including NV centres and other diamond defect centres, multiple ions, quantum dots, rubidium, and a variety of other systems and emitters. The PDK includes bi-wavelength crossings to allow the crossing of waveguides between any pair of wavelengths – it's possible to have overlapping circuits of 33 different wavelengths on the same chip!

Wavelengths and systems supported

λ(nm)	Fibre	Emitter(s)/System	λ(nm)	Fibre	Emitter(s)/System
493	SM450	Ba+ cooling	807	780HP	WSe2
532	SM450	NV spin, CsPbBr3 nanocrystal	850	780HP	Comms, Free space comms
552	SM450	PbV – Lead vacancy	852	780HP	Cs cooling
589	SM450	Na+ cooling	854	780HP	Ca+ repump
602	SM450	GeV – Germanium vacancy	866	780HP	Ca+ repump
614	SM450	Ba+ qubit transition	880	780HP	Nd3+ rare earth
619	SM450	SnV – Tin vacancy	895	780HP	Cs cooling
637	630HP	NV centre ZPL peak	920	780HP	InAs/GaAs QDs
645	630HP	hBN colour centre	980	1060XP	Yb3+ rare earth
650	630HP	Ba+ repump, NV centres	1033	1060XP	Sr+ repump
674	630HP	Sr+ qubit manipulation	1064	1060XP	SPDC pump
700	630HP	NV centre phonon sideband	1092	1060XP	Sr+ repump
729	630HP	Ca+ qubit	1127	1060XP	3C-SiC DV colour centre
738	630HP	SiV – Silicon vacancy	1310	SMF28	InAs/GaAs QDs, datacoms
780	780HP	GaS/AlGaAs QDs, Rb cooling	1468	SMF28	3C-SiC NV colour centre
785	780HP	DBT anthracene	1550	SMF28	InAs/InP QDs, Er3+, datacoms
795	780HP	Rb cooling	Your	System	Here: info@wavephotonics.com

EDA Integrations

Ready to go with:

SIEMENS

GDS FACTORY

LUCEDA PHOTONICS

S-Parameters for every component

Rapid turnkey packaging

Optimised gratings for the relevant fibre modes – compatible with the **QPICPAC** turnkey packaging service

SENKO® ALTER TECHNOLOGY GROUP Advanced Components

Also designed for the PHIX Characterisation Package

Fabrication tolerant

Data measured at wafer scale shows right-first-time design and 2x loss and performance variation reduction relative to inverse design