

CEIDEN

Spanish Group of Integral Simulation of Nuclear Power Plants (SIREN) Catalog of simulation codes used by the Spanish Nuclear Sector (rev.2, July 2020)

The Spanish Technology Platform of Fission Nuclear Energy, CEIDEN, has carried out a collection of calculation codes that are used, implemented, and / or developed by the Spanish nuclear sector organizations.

The codes included in the collection are basically those used in the simulation of the reactor core, and the safety analyses of nuclear power plants. Simulation codes used in other fields, such as mechanical or electrical design are not included, in general.

The table shows only the organizations that have participated in this compilation, so that does not include information corresponding to those which have not participated. Such information may be incorporated into future versions of this document.

[Responsible for updating: Oscar Cabellos (UPM)]



AREA	CODE	Ciemat	CSN	EEAA	ENSA	ENUSA	Iberdrola	IDOM	Naturgy	NFQ	SEA	Tecnatom	Thunder	UNED	UPC	UPM	UPV	
1 Cross section library processing	NJOY																	
2 Monte Carlo	TRIPOLI																	
	MCNP																	
	PHITS																	
	FLUKA / GEANT																	
	KENO /SCALE																	
	PENELOPE																	
3 Isotopic inventory and activation	SERPENT																	
	DARWIN																	
	ORIGEN / SCALE																	
	ACAB																	
	MONTEBURNS																	
	TRITON/SCALE																	
4 Fuel Assembly	EVOLCODE																	
	APOLLO																	
	DRAGON																	
	CASMO																	
	FRAP-T6																	
	WIMS-MARIA																	
5 Kinetics 3D Core	SCALE																	
	NEWT/SCALE																	
	PARCS																	
	COBAYA4																	
	SIMULATE																	
	SIMTRAN/SEANAP																	
6 Thermohydraulic Subchanells	ANC																	
	PANACEA																	
	VALKIN																	
	VALKIN-FVM																	
	FLICA-OVAP																	
	COBRA-3C																	
7 Thermohydraulic CFD	SUBCHANFLOW																	
	VIPREW																	
	COBRA-TF																	
	ANSYS-CFX																	
	FLUENT																	
	STAR-CCM																	
8 Systems Thermohydraulics	OPEN FOAM																	
	CATHARE																	
	ATHLET																	
	RELAP																	
	RETRAN-3D																	
	TRAC																	
	TRACG																	
	LOFTRAN																	
	TRIO U																	
	TRANSAT																	
	TRACE																	
	THOR																	
9 Uncertainties & Sensitivity	ECOSIMPRO																	
	GASAP																	
	LHS/PCCSRC																	
	DAKOTA																	
	SUNSET																	
10 Fuel-Thermomechanics	MONTEBURNS / AS																	
	SUMMON																	
	TRANSURANUS																	
	DRACCAR																	
	FRAPCON-3																	
	FRAPTRAN																	
	SCANAIR																	
	FALCON																	
	GSTRM																	
	PRIME																	
11 Containment	PAD																	
	TREQ																	
12 Severe accidents	CONTAIN																	
	GOTHIC																	
	ASTEC																	
13 Irradiation damage	MELCOR																	
	MAAP / SCDAP																	
	MARS																	
	PERFECT / GETMAT																	
	MDCASK																	
	BIGMAC																	
	SIESTA																	
14 Site dose evaluation	LAMMPS																	
	DD3D																	
	CORADIS																	
	TBSIC																	
	GASPAR/LADTAP/XOQDOQ																	
	MMS-FLEXPART																	
	MACCS2																	
	PC-CREAM																	
	COSYMA																	
	DIATMOS																	
	RADTRAD																	
	RESRAD																	
	DOGALI																	
15 Probabilistic risk assessment	INDAC																	
	POSTRAD																	
	CADDEF																	
	NORMITRI																	
	UFOTRI																	
	RISKSPECTRUM																	
	SAPHYRE																	
	CAFTA																	
	EOOS																	
	PRAQUANT																	
16 Shielding	PSALEV																	
	FORTE																	
	FRANX																	
	MAGIC																	
	NUCAP																	
17 Emergency Support	RELIABILITY WORKBENCH																	
	MICROSHIELD																	
	MARMER																	
	QADCCGP																	
	Skyshine/SKYDOSE																	
18 Fuel Cycle	MAVRIC/SCALE																	
	JRODOS																	
	MOIRA																	
19 Data Base	RASCAL																	
	TR_EVOL																	
	SF-COMPO																	
20 Multiphysics	ICSBEP																	
	IRPhE																	
	SINBAD																	
	COUNTHER																	

The color darkness indicates the experience grade in use, implementation and development of the codes.