

Variable	Data type	Description
<i>load</i>	<i>float</i>	Static external load at end of active area
<i>alpha_elastomer</i>	<i>float</i>	Heat transfer coefficient between elastomer and surroundings
<i>Tu, T0, dT, T</i>	<i>float</i>	Ambient-, initial-, incremental-, Temperature
<i>sequences</i>	<i>list</i>	List of sequences including time and supplied current for sequence
<i>dt</i>	<i>float</i>	Temporal increment
<i>dx</i>	<i>float</i>	Spatial increment
<i>mf0, mf_1, mf</i>	<i>float</i>	Initial-, constant-, martensite fraction
<i>stress0, stress</i>	<i>float</i>	Initial and SMA wire stress
<i>strain0, strain</i>	<i>float</i>	Initial and SMA wire strain
<i>real_As, real_Af, real_Ms, real_Mf</i>	<i>float</i>	Stress influenced transformation temperatures
<i>resistance</i>	<i>float</i>	SMA wire resistance
<i>R</i>	<i>float</i>	Bending radius
<i>eps_tr</i>	<i>float</i>	Current maximum transformation strain
<i>xmax</i>	<i>float</i>	Maximum expansion of the SMAHC in x-direction
<i>S</i>	<i>SMAHC</i>	SMAHC object
<i>u0_d, u_d</i>	<i>np-array</i>	Interlayer temperature field
<i>U</i>	<i>float</i>	Incremental change in internal energy
<i>Ein</i>	<i>float</i>	Incremental electrical energy supplied to the system
<i>E_cond, E_conv, E_loss</i>	<i>float</i>	Incremental conductive-, convective-, accumulated Energy loss
<i>E_cond_sum, E_conv_sum, E_loss_sum, Ein_sum, Usum</i>	<i>float</i>	Incremental cumulative energy amounts
<i>data_array</i>	<i>np-array</i>	Array for data storage
<i>t, t_tot</i>	<i>float</i>	Current simulated time, total time to simulate
<i>current</i>	<i>float</i>	Supplied current
<i>E</i>	<i>float</i>	The SMA's Young's modulus
<i>L0</i>	<i>float</i>	The SMA's initial length
<i>deflection</i>	<i>float</i>	Deflection of the SMAHC at end of active length
<i>dt_max</i>	<i>float</i>	Maximum time increment for heat transfer simulation according to Courant-Friedrichs-Lewy stability criteria
<i>nsteps</i>	<i>float</i>	Number of increments of the heat transfer simulation for one increment of the overall transient SMAHC simulation
<i>nx_d</i>	<i>int</i>	Number of elements of interlayer representation in x-direction
<i>ny_d</i>	<i>int</i>	Number of elements of interlayer representation in y-direction
<i>a</i>	<i>float</i>	Specific heat capacity during transformation
<i>td</i>	<i>float</i>	Thermal diffusivity inside the interlayer
<i>tds</i>	<i>float</i>	Thermal diffusivity between surface of the interlayer and ambient
<i>md</i>	<i>Mechanical_domain</i>	Mechanical domain model object
<i>ht</i>	<i>Heat_transfer</i>	Heat transfer model object
<i>hc</i>	<i>horizontal_cylinder</i>	Horizontal cylinder object that allows for determination of the heat transfer between the upper half of the wire and the ambient
<i>A_sma</i>	<i>float</i>	Cumulative crosssection of all wires in the grid
<i>phi, phidot</i>	<i>list</i>	List of the angles of curvature and list of all derivatives for all elements that represent the mechanical system of the SMAHC
<i>elements</i>	<i>List</i>	List of all elements that represent the mechanical system of the SMAHC
<i>phi0, phi_d_0</i>	<i>float</i>	Angle of curvature and derivative at fixed end of the SMAHC $\Phi(L = 0)$ and $\Phi'(L = 0)$
<i>M_sma</i>	<i>float</i>	Bending moment exerted by the SMA