A sample abstract for the International Conference “Systems Analysis: Modeling and Control”

F. Author
Affiliation of the Author, City
e-mail: f.author@inst.edu

An optimal control problem (see, e.g., [1, 2]) may be formulated as follows. Minimize the functional

$$J = \Phi[x(t_0), t_0, x(t_f), t_f] + \int_{t_0}^{t_f} \mathcal{L}[x(t), u(t), t]\, dt \tag{1}$$

subject to the first order dynamic constraints (the state equation)

$$\dot{x}(t) = a[x(t), u(t), t],$$

the algebraic path constraints

$$b[x(t), u(t), t] \leq 0$$

and the boundary conditions

$$\phi[x(t_0), t_0, x(t_f), t_f] = 0$$

where $x(t) \in \mathbb{R}^n$ is the state, $u(t) \in \mathbb{R}^r$ is the control, t is the independent variable (generally speaking, time), t_0 is the initial time, and t_f is the terminal time. The functional (1) is called a *cost functional*.

The work was supported by a Foundation under project 16-01-00000.

References

[1] *Pontryagin, L.S., Boltyanskii, V.G., Gamkrelidze, R.V., Mishchenko, E.F.* The Mathematical Theory of Optimal Processes. John Wiley & Sons, New York, 1962.

[2] *Bellman, R.* Adaptive Control Processes: A Guided Tour. Princeton University Press, 1961.