Coldae++

March 16, 2022

$$(\partial/\partial x)^{m_i} u_i = f_i(x, \mathbf{z}, \mathbf{y}), \quad 1 \le i \le n_c \tag{1}$$
$$0 = f_i(x, \mathbf{z}, \mathbf{y}), \quad n_c + 1 \le i \le n_c + n_y \tag{2}$$
$$0 = g_j(\zeta_j, \mathbf{z}), \quad 1 \le j \le m_\star \tag{3}$$

where

$$m_\star = m_1 + ... + m_{n_c} \tag{4}$$
$$\mathbf{u} = (u_1, ..., u_{n_c}), \quad \mathbf{y} = \left(y_1, ..., y_{n_y}\right) \tag{5}$$
$$\mathbf{z} = \left(u_1(x), ..., u_1^{(m_1-1)}(x), ..., u_{n_c}^{(m_{n_c}-1)}(x)\right) \tag{6}$$

Restrictions are

$$1 \le m_i \le 4, \tag{7}$$
$$0 \le n_c \le 20 \tag{8}$$
$$0 \le n_y \le 20 \tag{9}$$
$$1 \le m_\star \le 40 \tag{10}$$