

# On the integrability of 3D second order quasilinear PDEs

E.V. Ferapontov<sup>1</sup>

May 17, 2007

1. Department of Mathematical Sciences, Loughborough University, UK.

I will discuss the integrability of 3D second order quasilinear PDEs of the form

$$a_{11}u_{xx} + 2a_{12}u_{xy} + a_{22}u_{yy} + 2a_{13}u_{xt} + 2a_{23}u_{yt} + a_{33}u_{tt} = 0$$

where  $a_{ij}$  are functions of  $u_x, u_y, u_t$ . The integrability is understood as the existence of ‘sufficiently many’ hydrodynamic reductions. Differential-geometric aspects of the integrability conditions will be clarified.