

## CCFU Proof 22

Explicit  $\Omega_W$

**Given.**  $V_W = \mathbb{R} \cdot \tau \oplus W \oplus W^*$  [Proof 21].

Basis:  $e_0 = \tau$ ,  $(e_1, e_2, e_3) = W$ ,  $(e_4, e_5, e_6) = W^*$ .

**The canonical 3-form:**

$$\Omega_W = e_{014} + e_{025} + e_{036} + e_{123} + e_{456}.$$

Five terms. Constructed from  $W$  after choosing a volume form. The  $\text{GL}(7)$ -orbit is independent of the volume choice [Proof 21]. ■

*Note.* The  $\Omega$  of the earlier construction:

$$\Omega_{\text{old}} = e_{012} - e_{034} - e_{056} - e_{135} + e_{245} + e_{146} + e_{236}$$

is  $\text{GL}(7)$ -equivalent to  $\Omega_W$ . Both give the same stabilizer.

[Dependency: Proof 21.]