Then M is a part of a 2-dimensional sphere in E^4.

Proof. The condition (ii) implies again (6) and (7). From (11) and (13), using (7), we obtain

$$\langle V_{1111} - V_{2222}, V_{11} - V_{22} \rangle =$$
$$= (a_1 - a_3)(A_1 - E_1) + (b_1 - b_3)(A_2 - E_2) + 3(\alpha_2^2 + \alpha_3^2 + \beta_2^2 + \beta_3^2)$$

and hence from (30)

$$\Phi = \langle V_{1111} - V_{2222}, V_{11} - V_{22} \rangle - 3(\alpha_2^2 + \alpha_3^2 + \beta_2^2 + \beta_3^2).$$

Thus we have the equation (35) with

$$W = V + \Phi = \langle V_{1111} - V_{2222}, V_{11} - V_{22} \rangle +$$
$$+ (\alpha_1 - \alpha_3)^2 + (\alpha_2 - \alpha_4)^2 + (\beta_1 - \beta_3)^2 + (\beta_2 - \beta_4)^2 + \alpha_2^2 + \alpha_3^2 + \beta_2^2 + \beta_3^2,$$

V being again defined by (30). This completes the proof.

References

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