

*SUpport to SAfety ANalysis of Hydrogen and Fuel Cell Technologies*

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|----------------------------|---|
| <b>Verification type</b>   | Analytical Solutions  |
| <b>Database reference</b>  | ANA-6   |
| <b>Topic / Application</b> | AIAA verification test cases  |
| <b>Physics</b>             | Expansion fan<br>oblique shock<br>incompressible boundary layer flow<br>Coquette Thermal Flow<br>Detonation wave<br>Burgers Equation  |
| <b>Summary</b>             | Paper presents a collection of fluid mechanics problems with exact solutions  |
| <b>Description</b>         | Paper presents a collection of fluid mechanics problems with exact solutions which can be used to verify the numerical accuracy of solutions obtained by CFD codes.<br><br>The test cases include Expansion fan, oblique shock, incompressible boundary layer flow, Coquette Thermal Flow, Detonation wave, Burgers Equation. |
| <b>Case Title</b>          | The AIAA Code Verification Project - Test cases for CFD Code Verification   |
| <b>Authors</b>             | Urmila Ghia, University of Cincinnati et al   |
| <b>Year</b>                | 2010  |
| <b>Online reference</b>    | 48th AIAA Aerospace Sciences Meeting Including the New Horizons Forum and Aerospace Exposition  |
| <b>Case image</b>          |   |
| <b>Governing equations</b> |   |
| <b>Results</b>             |   |