

Table of Contents

	<i>Page #</i>
1. The LYMAN Project	
1.1 Executive Summary	246
1.2 Project History	248
1.3 The Scientific Working Groups	249
2. Scientific Objectives for LYMAN	
2.1 Introduction	251
2.2 Stellar Research	254
2.2.1 Pre-Main Sequence Stars	254
2.2.2 Cool Stars	255
2.2.3 Hot, Young Stars	259
2.2.4 The End Stages of Stellar Evolution	260
2.2.5 Planetary Nebulae	262
2.2.6 Interacting Binary Stars	264
2.2.7 Novae and Supernovae	267
2.3 The Interstellar Media of Galaxies	268
2.3.1 The Hot, Coronal Phase of the Interstellar Medium	269
2.3.2 The Properties of the Hot Galactic Halo	270
2.3.3 Interstellar Dust and Molecules	272
2.3.4 Supernova Remnants	274
2.4 Cosmology and Galaxies	277
2.4.1 Nucleosynthesis in the Big Bang Model	277
2.4.2 LYMAN and the Quest for the Primordial D / H Ratio.	281
2.4.3 Haloes of Galaxies at High Redshift	283
2.4.4 Starburst Galaxies	285
2.4.5 Active Galaxies and Quasars	286
2.5 Solar System Science	287
2.5.1 Planets and Satellites	287
2.5.2 Comets	289
3. LYMAN Technical Description	
3.1 Mission Concept	290
3.2 Orbit Selection and Maintenance	292
3.3 The Service Module	293
3.3.1 Structural Design and Layout	293
3.3.2 Power Subsystem	295
3.3.3 Data Handling Subsystem	296
3.3.4 Attitude and Orbital Control Subsystem	297

Table of Contents (Continued)

	<i>Page #</i>
3.4 The Payload Module	299
3.5 The Telescope	302
3.6 Focal Plane Assembly	306
3.6.1 Target Aquisition Camera	306
3.6.2 Slit Assembly and Fine Error Sensor	307
3.7 The Science Instruments	311
3.7.1 The Rowland Prime Spectrograph	312
3.7.2 The Échelle Prime Spectrograph	315
3.7.3 The Extreme- UV Spectrograph	317
3.7.4 Calibration	318
3.8 The Detectors	320
3.8.1 Detector Principle	320
3.8.2 Detector Engineering and Performance	323
3.8.3 Detector Architecture	324
3.9 Ground Segment and Operations	327
3.9.1 An Australian Ground Station	327
3.9.2 An Australian Mission Operations Centre	329
3.9.3 An Australian Science Operations Centre	330
3.9.4 Data Analysis and Archiving	331
3.9.5 Operational Phases	333

4. Project Status

4.1 Project Assessment	335
4.2 International Collaboration	336
4.3 Development Schedule	337

5. Appendices

5.1 LSWG Documents.	339
5.2 LYMAN, Applicable Reference Documents	339
5.3 References	340
5.4 List of Acronyms	341
5.5 Acknowledgements	342